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CONTENTS AND DIGEST

The Relation of Medical Zoology to Public Health Problems. Robert W. Hegner, Ph.D., Baltimore.....1607

Results of a survey undertaken when the School of Hygiene and Public Health was organized at the Johns Hopkins University. Restriction of the study for the most part to protozoology, helminthology and entomology. Problems of pure and of applied science. Association with International Health Board. Means of acquainting public health officers with the work.

Suggestions Regarding Postmortem Technic. E. R. LeCount, M.D., Chicago 1611

Laxness resulting from the absence of postmortem standards in this country, in contrast to requirements in certain other countries. Details of a method that possesses many advantages.

The Roentgenology of Appendical Obliteration: A Pathologic or a Physiologic Process? E. H. Skinner, M.D., Kansas City, Mo.....1614

Significance of the filling of an appendix lumen in an adult with an opaque meal. Value of a fermented milk meal. Proper time for determining appendical shadows. Pertinent points in the analysis of appendical shadows. Hypotheses supporting argument of appendical obliteration.

Discussed by Drs. Mills, Pitzman, Jones, Stewart, Palefski and Skinner.

What Are the Contraindications to Prostatectomy? Observations Based on a Series of One Hundred and Ninety Cases of Adenomatous Prostate with Operation by the Two-Step Method. James A. Gardner, M.D., Buffalo 1617

Important causes of mortality. Importance of a short general anesthetic. Necessity for careful bladder examination. Advantages of suprapubic and peritoneal operations.

Discussed by Drs. Kretschmer, Cecil, Ballenger, Fowler, Gilbride, Crowell, Lower, Lespinasse and Gardner.

Vincent's Angina Infection: Its Prevalence, Manifestations, Bacteriology and Treatment: Report of Fifty-Six Cases. Frank F. D. Reckord, M.D., Harrisburg, Pa., Assisted by M. C. Baker, M.D., Louisville, Ky.....1620

Ease of mistaking this condition for diphtheria. Frequency among Allied troops in France. Observations at Camp Devens. Diagnosis and treatment.

The Alkali Reserve in Epidemic Influenza and Bronchopneumonia. David S. Hachen, M.D., and Raphael Isaacs, M.D., Cincinnati 1624

Blood determinations in twenty-one patients, taken during different stages of influenza and bronchopneumonia. Effect of alkali therapy by mouth. Comparison of alkali reserve and temperature. Alkali reserve as an indication of complications. Effect of the disease on the blood sugar. Relation between cyanosis and alkali reserve.

Definitive Percussion and Inspection in Estimating Size and Contour of Heart. C. F. Hoover, M.D., Cleveland 1626

History of the art of percussion. Proper method of employing the mediate method. Ability to locate right border of heart as test of skill in percussion. Determination of the inferior boundary of the heart.

(Continued on next page)

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SAUNDERS, *Publishers* See Pages 3, 4, 5

CONTENTS AND DIGEST— Concluded

The Relative Usage of Narcotic Drugs in Hospital Service and Private Practice. Thomas S. Blair, M.D., Harrisburg, Pa. 1630

Aplastic Anemia and Related Conditions. Ralph C. Larrabee, M.D., Boston 1632

Acute Appendicitis: A Review of Five Hundred and Eighty-Four Consecutive Cases. Frederic W. Bancroft, M.D., New York.....1635

Hydrogen-Ion Concentration of the Contents of the Small Intestine. J. F. McClendon, Ph.D.; F. S. Bissell, M.D.; E. R. Lowe, B.S., and P. F. Meyer, B.S., Minneapolis.....1638

Chronic Pelvic Peritonitis of Unknown Etiology Occurring in Women. Samuel H. Geist, M.D., New York....1641

A Diabetic Dietary. Edward E. Cornwall, M.D., Brooklyn.....1642

Malignant Endocarditis and Metastatic Abscess in Gonococcemia: Report of a Case in a Child with Culture of the Gonococcus from the Blood During Life. Hugh L. Dwyer, M.D., Kansas City, Kan.....1643

The Diagnostic Value of Cardiac Murmurs. Glentworth R. Butler, M.D., Brooklyn.....1644

CLINICAL NOTES, SUGGESTIONS AND NEW INSTRUMENTS

An Apparatus for Controlling Hemorrhage from the Scalp. Henry B. Freiberg, M.D., Cincinnati.....1645

Etiology of Deviations of the Nasal Septum: Anatomic Theory. William Spielberg, M.D., New York.....1646

Bone-Screw and Bone-Screw Screw-Driver. Edward A. Cayo, M.D., San Antonio, Texas.....1646

Use of Silver Nitrate Ointment in the Treatment of Vulvovaginitis in Children. George Gellhorn, M.D., St. Louis.....1647

EDITORIALS

A Contrast of Chemotherapy and Serotherapy 1648
Inefficacy of arsenicals and protective power of horse serum in guinea-pigs infected with Leptospira icteroides.

The Control of the Pylorus.....1648
Correlation between motor activity of stomach and inhibition in tone of pyloric sphincter.

The Calcium Requirement of Man..1649
Low content of lime salts in many staple foods.

What Is a Normal Blood Pressure? 1650
Low figures obtained among college students.

CURRENT COMMENT

The Sincerest Flattery.....1651
Reproduction of articles that have appeared in the Spanish Edition of THE JOURNAL.

The Spiritual Advancement of the Physician.....1651
A by-product of increased educational requirements.

The Fly in Court.....1651
A unique indictment.

Sensitization of Organs to Light....1651
Effect of illumination after introduction of fluorescent substances.

MEDICAL NEWS 1652

GOVERNMENT SERVICES 1657

FOREIGN LETTERS 1657

MARRIAGES 1661

DEATHS 1661

PROPAGANDA FOR REFORM 1662
Physician's Stock in Prescription Products — More Misbranded Nostrums.

CORRESPONDENCE 1664
Congenital Dislocation of the Hip—Five Cases of Glioma of the Retina in One Family — "Credulity and Cures."

QUERIES AND MINOR NOTES 1665
Health of Employees in Match Making; Phosphorus Poisoning — Cultural Characteristics of Lactobacilli.

MEDICAL EDUCATION, REGISTRATION AND HOSPITAL SERVICE 1665

BOOK NOTICES 1667

MISCELLANY 1668

MEDICOLEGAL 1669

SOCIETY PROCEEDINGS 1671
Coming Meetings—Southern Medical Association.

CURRENT MEDICAL LITERATURE

American Medical Journals

Reaction of Pregnant and Lactating Females to Spirochaeta Pallida Inoculation—Spontaneous Rupture of Heart and Aorta—Treatment of Chronic Empyema.....1672

Aspiration Drainage for Acute Empyema—Abscess of Lung — Protein Sensitization—Lymphogranulomatosis of Skin — Skin Tumors in Lymphatic Leukemia — Lichen Planus—Syphilitic Infection of Central Nervous System—Wounds of Head and Compensation Laws—Rare Clinical Types of Epidemic Encephalitis — Puncture of Cisterna Magna—Albuminuria and Epilepsy—Rupture of Spleen 1673

Recovery of Cells from Injury—Chemical Reaction in Heart Ganglion Cells and Carbon Dioxid Production — Photo-Inactivation of Light—Mechanism of Complement Action—Streptococcus Hemolyticus Infections and Acidosis—Agglutination in Influenza—Reaction of Different Strains of Influenza Bacilli—Complement Fixation in Influenza—Production of Antimeningococcic Serum...1674

Effect of Roentgen Ray and Thorium X on Infections—Weight Curve in Tuberculosis—Cautery Punch—Action of Sodium Oleate on Gonococcus—Hexamethylenamin Antisepsis—Mesothelioma of Ureter — Erysipelas with Loss of Vision.....1675

Fluid Injections by Intraperitoneal Route.1676

Foreign Medical Journals

Cysts and Cancer of Breast—Aneurysms in Neck—Cause of Appendicitis—Intussusception of Appendix—Blackwater Fever—Resuscitation in Death Under Anesthesia by Heart Massage—Head of Rye Grass in Lung—Spontaneous Extrusion of Fibroid—Kidney Decapsulation in Subacute Nephritis...1676

Mental Defect and Criminal Conduct—Pregnancy and Syphilis—Treatment of Syphilis in the Pregnant — Treatment of Syphilitic Mothers and Babies—Examination of Cerebrospinal Fluid — Treatment of Diphtheria Carriers with Detoxicated Klebs-Loeffler Vaccine—Preservation of Lemon Juice—Tonsillectomy—Nerve Suture with Immediate Return of Sensation.....1677

Symbiosis of Two Rats—Cystic Pneumatosis—Central Neurofibromatosis—Modern Ideas on Tubercle Bacillus Infection—Diverticulum of the Esophagus—Operation on the Pituitary. 1678

Radiotherapy of Cancer—Case of Köhler's Disease—Primary Tuberculosis of the Bladder—Catheterization of Ureters Through the Opened Bladder—Neurology in 1920—Trigeminal Neuralgia—Frontal Coma — Cancer of the Rectum.....1679

Poisoning from Cream Cakes—Prognosis in Syphilis—Obstetric Paralysis of the Arm—Simple Posterior Gastro-Enterostomy for Gastric and Duodenal Ulcers—Blood Transfusion — Pregnancy Toxicoses — "Dial" Poisoning—Neurosyphilis in Boy of Ten—Helminths in Infants—Immunization Against Measles 1680

Transfusion for Anemia in Child—Ophthalmic Herpes Zoster — Flushing the Antrum of Highmore—Technic for Radium Treatment—Ovarian Cancer—Spontaneous Retrogression of Tubal Pregnancy — Conservative Operations on the Adnexa—Adhesive Pericarditis in Children 1681

Centrifuged Human Milk for Sick Infants—Epinephrin in Treatment of Pneumonia in Infants—Galactose Metabolism in Infants—The Sugar Content of the Blood in Infants—Transverse Resection of Stomach for Hard Ulcer—Gastro-Enterostomy for Gastric and Duodenal Ulcer—Rubber Prosthesis to Connect Bile Duct with Duodenum — Hydronephrosis Caused by Abnormal Blood Vessels 1682

Spontaneous Separation of Epiphyses—Pneumatocele of the Skull—Multiple Cancers—To Join Bones by Raw Surfaces Cut in Steps—Retropharyngeal Goiter—Constitution of Illegitimate Children—Diuretics in Kidney Diseases—The Clinical Pathology of the Midbrain—For and Against "Butter-Flour Mixture"—Influence of Epinephrin and Pilocarpin on Calcium Metabolism in Infants—Feeding During the Second Year.....1683

Pseudo-Appendicitis—Localization of Abdominal Tumors—Surgical Complications of Typhoid—Exudative Pleurisy — Exophthalmic Goiter Developing into Myxedema Under the Influence of Roentgen-Ray Treatment—Sensibility of Internal Organs—Thirst as a Manifestation of Toxicosis — The Dangers of Starvation Diet in Toxicosis.....1684

Sedimentation Time of Red Corpuscles in the Healthy and Mentally Diseased—Atypical Erythema Nodosum—The Zeitschift—Disease in Malformed Kidneys—An Accessory Kidney — Spontaneous Cure of Hypernephroma — Prolapse of Urethra in Little Girls—Papillomas of Kidney Pelvis—Recurrences After Prostatectomy — Ischiorectal Prostatectomy 1685

Operations for Renal Calculus—Experimental Research on Primary Tuberculosis of the Female Genital Organs—Endometritis Post Abortum and Uterine Hemorrhage—Sarcoma of the Conjunctiva—Internal Ear Disease—Hereditary Mental Disease and Ichthyosis—Fat Infiltration of the Liver.....1686

TONICS AND SEDATIVES—BOOKS RECEIVED.....Adv. Page 20

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THE RELATION OF MEDICAL ZOOLOGY TO PUBLIC HEALTH PROBLEMS*

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BALTIMORE

When the School of Hygiene and Public Health of the Johns Hopkins University was organized, medical zoology was selected as one of the basic sciences underlying public health work. To train students successfully and to add to our knowledge of the subject by appropriate investigations required a survey of the relations of medical zoology to public health problems, and it is my intention to outline some of the results of this survey.

SUBDIVISIONS

Medical zoology comprises only those phases of the study of animals that are most closely associated with the health of mankind. Most of the animals in the animal kingdom are thus excluded, and those that remain are almost entirely restricted to three large groups: (1) the protozoa, (2) the parasitic worms, and (3) the insects and their allies.

Medical zoology may therefore be divided into three sections: protozoology, helminthology and medical entomology. It is clearly recognized, however, that these three subjects have much in common and must be intimately associated. Thus, in addition to comprehensive courses in protozoology, helminthology and medical entomology, a course also in animal parasitology is given which includes work in all three subdivisions. The aims and content of these courses are stated in the catalogue and announcement of the school.

PROBLEMS IN PROTOZOOLOGY

The most important groups of protozoa parasitic in man are the intestinal amebas, the intestinal flagellates, the hemoflagellates, the hemosporidia, the coccidia and the intestinal ciliates. In addition to these, the spirochetes might be included; but it seems best for the present to leave out of consideration organisms of such doubtful systematic position. What problems do these groups present that have a bearing on public health? It is impossible, of course, to answer this question satisfactorily in a short paper; but certain lines of investigation may be indicated that seem particularly interesting.

The war has brought into prominence the importance of intestinal protozoa. Among the best known species are *Endameba histolytica, Giardia intestinalis, Trichomonas intestinalis, Chilomastix mesnili, Isospora hominis* and *Balantidium coli.* Many other species have been described; but they are apparently less abundant, and some of them are not yet well established. One problem that involves all of these species is that of pathogenicity. Parasitic protozoa frequently occur in healthy persons as well as in many who are suffering from dysentery and diarrhea. Are these intestinal disorders due to the presence of these organisms, or are these organisms present because the disordered intestinal tract is a good environment in which to live and multiply? There are several ways of studying this problem. It is possible to cultivate in suitable mediums both intestinal protozoa and the tissues which they are supposed to attack. If organism and tissue are brought together, we may be able to observe the effects of the parasites on the living cells and thus obtain an answer to our question.

Animal experimentation offers another method of attacking this problem. By inoculating laboratory animals, such as kittens and rats, it should be possible to follow the relations of the protozoa to the intestinal tract by postmortem examinations at various intervals after infection. Careful microscopic study should reveal whether or not the invasion of the tissues is due to the activities of the parasite or is simply made possible by the previous aggression of some other organism.

We do not yet know how widely distributed or how abundant the different species of intestinal protozoa are. The results of many protozoan surveys have been published, especially since 1914, and these for the most part indicate a high percentage of infection both among patients with intestinal disorders and among persons apparently in perfect health. These surveys have a bearing on the pathogenicity of the species studied, provided the history of the individuals is obtained. Work of this sort also adds to our knowledge of the group of intestinal protozoa as a whole, since new species are constantly being added to the list of those already known, and new facts are being contributed regarding previously known species.

Recently the homogenicity of certain species of intestinal amebas has been brought into question, and it now seems probable that races of *Endameba histolytica, E. coli* and *E. nana* exist that differ from one another in the size of their cysts. Thus far, no differences have been discovered between the relations of these various races to their hosts; but the problems involved are not yet fully solved.

There are also many public health problems concerned in the control of intestinal protozoa. We believe we know that these organisms are disseminated in the cyst stage and enter new hosts in contaminated water or food, but our data on this subject are most inadequate. Additions to our knowledge of the effects of

* From a paper read before the Congress of the Royal Institute of Public Health, Brussels, May 23, 1920.

environmental factors on the viability of the cysts are much needed. Especially desirable are experimental data regarding the effects of temperature, moisture and chemical substances that may be employed for destroying cysts and thus preventing soil pollution. It is possible that certain of the intestinal protozoa are common to man and lower animals, and that the latter act as reservoirs and distributors of their cysts. This is especially true of such forms as *Giardia, Balantidium* and *Coccidia.*

That our present methods of therapy are not considered satisfactory is evident from the large number of studies on this subject that are constantly appearing in our medical journals.

Only when we contrast our knowledge of the intestinal protozoa with what we have yet to learn do we realize how little we know about them, and how many problems that involve the health of mankind remain to be solved.

The more important blood-inhabiting protozoa are the malaria organisms, trypanosomes and leishmanias. Malaria has always been and still is one of the most important of all tropical and subtropical diseases, and some of the most brilliant investigations in the field of medical zoology have resulted from its study. Nevertheless we do not know for certain in what form the malaria parasite exists in the body of a malaria carrier; we have no adequate method for the detection of carriers, and are not able to agree on the best methods of therapy.

Relapse in malaria is probably due to the renewed activity of parasites that lie dormant in the body. We need to know in what part of the body these dormant parasites are segregated and in what stage of their life cycle they exist. This problem can perhaps best be solved by studies of bird malaria—such studies as have in the past helped so much in the elucidation of malarial problems in man. Doubt has also been expressed regarding the significance of exflagellation and the fertilization process; and the question as to whether the parasite is intracorpuscular or extracorpuscular has not been answered conclusively.

To control malaria effectively we must eliminate the reservoirs of infection. This can be done only on the basis of more information than we now possess. In certain parts of the United States, at least, the mosquitoes apparently do not carry the infection over winter, and man seems to be the only reservoir. The possibility, however, that certain lower animals may serve in this capacity has not been excluded. One of the main problems now seems to be to perfect a method of detecting human carriers. The history method and blood examination are not satisfactory, and some process, such as serum diagnosis, is much to be desired.

Opinions differ widely regarding the dosage necessary for the sterilization of carriers. If man is the only or the principal reservoir of the malaria organism, it is evident that by proper therapy the organisms he carries can be eliminated. Many investigators are at work on this problem and are carrying on researches that may lead to the discovery of therapeutic agents that may supplement quinin, and of better methods of applying these remedies.

Trypanosomes are more widely spread among lower animals than are the malarial organisms; but those pathogenic to man are more restricted in their distribution, although very important wherever prevalent. The species problem has here attracted considerable attention—a problem of great difficulty because of the slight variations in morphologic characteristics and the polymorphic condition of the pathogenic species. A method of attacking this problem that promises results is to inoculate laboratory animals with single specimens, and then by statistical procedure to determine the extent of variation in the descendants when cultivated in different hosts of the same species and in hosts of different species. I have found striking and constant differences in size in the trypanosomes of the newt taken from different hosts, and a comprehensive program of carefully controlled experimental work is under way in our laboratory to test the relation between heritable characteristics and environmental influence on pure lines of these organisms. The solution of this species problem will be of great assistance in locating the animal reservoirs of the pathogenic trypanosomes.

Another problem concerns the effects of various reagents on trypanosomes; improved methods of chemotherapy will undoubtedly result from such studies. Life history investigations are also much needed, since we cannot apply control measures intelligently until we know the complete life cycle of an organism and can select the critical stage in its life cycle for attack.

The most pressing problem presented by the leishmanias is probably the methods of their transmission. *Leishmania donovani,* the organism of kala-azar, may enter the body with contaminated water or it may be distributed by the bedbug, flea, mosquito, sand fly, house fly, louse or tick, but our evidence against these arthropods is not sufficient to convict any one of them. The data we have regarding the organism that causes infantile kala-azar, *L. infantum,* incriminates the flea but is likewise not complete enough for conviction. Possible vectors of the organism of oriental sore, *L. tropica,* are the house fly, bedbug, stegomyia mosquito, sand fly and tick, but none has yet been determined with certainty.

The question of specific differences, as in the trypanosomes, needs further investigation. Perhaps when we know more about the distribution of these parasites within the human body, and have worked out in more detail the cytologic phenomena that accompany division and other stages in their life cycles, we may be able to separate the species by morphologic differences. The parasites of this group that cause human diseases in America, *L. tropica, L. americana* and *L. braziliensis,* are considered by some to be of doubtful specific rank. We are not even certain that the leishmanias of man do not belong to the same species as those of the dog, of insects and of other lower animals.

PROBLEMS IN HELMINTHOLOGY

The parasitic worms form several well defined zoological groups; many of them are more or less harmful to man, some being widely spread over the earth's surface and others of local distribution. Thus, the importance of the various species from a public health standpoint depends on the part of the world under consideration. We may separate the parasitic worms into three divisions—the trematodes, cestodes and nematodes. To indicate the rôle these organisms play in human welfare we may mention among the diseases produced by trematodes, bilharzia disease of Egypt, and paragonimiasis, clonorchiasis, and schistosomiasis of the Orient; among those caused by the cestodes, the disease due to the presence of hydatids; and among the diseases produced by nematodes, the hookworm disease and filariasis. Not until our knowledge

is much more complete than at present can we expect to control effectively these and similar parasitic worms.

There is much still to be learned regarding the life cycles of the various species. For example, the first intermediate host of *Paragonimus ringeri* is still in doubt; the method of infection of *Hymenolepis nana* is not fully understood, and the life history of the eye nematode needs further investigation. The development of our knowledge of the parasitic worms of man has depended largely on additions to our knowledge of the species that occur in lower animals. The parasitic worms of domestic animals are very important in animal husbandry and are more easily studied than those of man. Comparative helminthology must therefore be regarded as a subject of fundamental importance to the advancement of public health work. Much of our present uncertainty with respect to life histories and classification in general is no doubt due to the fact that the data are contained in many small contributions of a fragmentary nature, resulting from investigations due to chance discoveries. Comprehensive monographs of the more important groups are much needed.

Another phase of helminthology that requires emphasis is that of pathogenicity. The results due to the presence of certain species are well known, but many other species are of doubtful importance, and properly directed efforts for their control await the accumulation of further information. In what way injurious effects are produced is another problem that needs solution. Are the diseases due to toxins or to some other activity of the parasite? This question involves a study of the interactions of parasite and host, and can be answered only by serologic investigations.

Any investigator who is interested in the relation of parasitic worms to public health will find countless problems on which to work. The recent studies of the paths of migration of ascaris larvae in the body of the host, and their relation to diseases of the lungs of children, has renewed interest in this form, and similar researches are required in other types of worms. The problem of the specificity of intermediate hosts and its relation to the spread of parasitic worms into new areas is particularly interesting, since forms, such as *Schistosoma,* are continually being introduced by Orientals into California and other states and will become of public health significance if they succeed in finding suitable intermediate hosts. The periodicity in the migrations of certain larval nematodes, such as those of *Filaria bancrofti* and of *Loa loa,* is most remarkable and affords a very attractive field for investigation. The prophylaxis and treatment of diseases caused by parasitic worms are susceptible of considerable improvement, and offer opportunities for work that would be of immediate practical application.

The most important parasitic worm is the hookworm. Those who are undertaking campaigns for the eradication of this parasite are continually hindered in the application of control measures by a lack of knowledge of their biology. Incomplete information concerning the length of life of the larvae in the soil, the depth from which the larvae can reach the surface, the migration of larvae in the soil, and the resistance of eggs and larvae to various agents renders many expensive and time consuming efforts of doubtful value. It is expected that these and other studies of soil pollution in relation to the spread of the parasitic worms of man will soon be undertaken by the department of the School of Hygiene which I represent. Such work must include extensive investigations of the conditions under which the eggs and larvae of these parasites live in the soil, the methods by which they are spread, and the means of destroying them.

PROBLEMS IN MEDICAL ENTOMOLOGY

The groups of animals that are usually included in the field of medical entomology are four classes of arthropods: the crustacea, arachnida, myriapoda and insects. Only a comparatively small number of species belonging to these groups are of importance in public health work. Some of these, however, are the sole vectors of many of the most deadly disease germs. A few species, such as scorpions, black flies and ticks, are directly injurious; but most of them are indirectly harmful because they disseminate parasitic protozoa, pathogenic bacteria and parasitic worms. Thus, among the crustacea, *Cyclops* and other entomostraca are instrumental in the transmission of the broad tapeworm; among the arachnida, the mites and ticks are of particular importance as vectors; and among the insects, the bugs, lice, mosquitoes and other bloodsucking flies, the house fly and other nonbloodsucking flies, and the fleas are of the utmost epidemiologic significance.

It is evident to every one that the control of certain diseases, such as malaria and yellow fever, the germs of which are transmitted by only one or a few species of insects, may in many cases most easily be effected by campaigns directed against these insect vectors. The relations of mosquitoes to malaria are well known, but certain problems connected with practical field operations for their elimination are still in need of solution. Within recent years the International Health Board of the Rockefeller Foundation has carried out extensive field investigations for the purpose of discovering methods of mosquito control that would be inexpensive enough to be financed by the inhabitants of small communities and sparsely settled rural districts.

Any new facts about the biology of insect vectors may be of immense importance in the application of control measures. Among problems of this kind may be mentioned the effects of temperature and humidity on the life cycle of insects and on the parasites they harbor; the behavior of the adults and young stages with respect to light, odors, food and atmospheric conditions; the natural enemies of the eggs, larvae, pupae and adults, and their usefulness as agents of reduction; and the relations of the parasites themselves to their insect hosts. Each locality presents conditions similar to those that prevail in other localities, and in addition certain problems peculiar to itself. Thus, every campaign becomes an investigation in applied entomology, and provides unique circumstances that make the work of continued interest to the field director.

Another problem of great significance to public health is that of the relation of insects to soil pollution. We know that bacteria and the cysts of protozoa are carried by flies and other insects, but our knowledge is very deficient regarding the species of insects principally concerned, their degree of culpability, and the exact methods of transmission.

I have mentioned several diseases, such as kala-azar, whose germs are probably disseminated by insects. These and many other diseases cannot be controlled effectively until the entomologist, carrying on his work from the biologic standpoint, has provided us with

the data necessary to determine the insect vector concerned, the critical point in its life cycle when it can successfully be attacked, and the method of reduction best suited to the various conditions under which it exists in different parts of the world.

ANIMAL PARASITES OF UNCERTAIN SYSTEMATIC POSITION

The organisms that I have considered thus far may all be assigned to definite zoological groups; but certain others of great significance to public health are of uncertain systematic position and still others have never been seen and are known only by the diseases they produce. The spirochetes are considered bacteria by certain authorities, and protozoa by others. They actually possess characteristics belonging to both the bacteria and the protozoa, and seem almost important enough to be treated as an independent group of organisms and to have a science named for them — the science of spirochetology. Recent evidence indicates that yellow fever is a spirochete disease, and how many other diseases of obscure etiology are due to the presence of spirochetes we can only conjecture.

Various other organisms that fall within the province of medical zoology are not so well known as are the spirochetes. Not only are we in doubt as to their systematic position, but we are not absolutely certain of their relations to the diseases they appear to produce. In this group may be mentioned *Bartonella bacilliformis*, the probable organism of Oroya fever, and the species of *Rickettsia* which are possible etiologic factors in typhus fever, Rocky Mountain spotted fever and trench fever. There may be included here also the filtrable viruses which cause such diseases as dengue fever, phlebotomus fever and verruca peruana. Certain bodies that occur in patients suffering with such diseases as vaccinia, variola, scarlet fever and hypdrophobia may or may not be protozoan parasites. The name *Chlamydozoa* has been proposed for this group. These organisms of a doubtful nature are more difficult to work with than those about which our knowledge is more nearly complete, but their importance to public health is as great as are the obstacles presented by their investigation.

CONCLUSIONS

In this review I have presented only a few of the problems in medical zoology that are related to public health work. Many of these are of world wide interest, whereas others concern for the most part the United States of America; but those mentioned justify the statement that in many parts of the world, especially in the tropics and subtropics, animal parasites and the animal carriers of disease-producing organisms are of far-reaching significance to the welfare of the inhabitants. Better methods than are now available for eradicating or controlling these parasites and their vectors cannot be expected until the medical zoologists have made more thorough studies of the life cycles, biology and relations to environment of the organisms concerned.

At the School of Hygiene and Public Health of the Johns Hopkins University we are at work on problems representing both "pure" and "applied" science. It is impossible to separate entirely these two kinds of research; but the type of investigation that leads to results of no obviously immediate practical use may be called pure science, and the type that has a direct bearing on some public health activity may be called applied science. For example, investigations are now in progress in our laboratory on the classification, morphology, physiology, life histories and reproduction of blood-inhabiting and intestinal protozoa, trematodes and nematodes, and mosquitoes and house flies. From the results of these studies we may or may not obtain data that can be utilized in instituting control measures; but we are certain to add to our knowledge of these groups, and no one can predict when and to what degree this knowledge will become of practical value. Other investigations now in progress have more definite practical aims. We are attempting to aid in the solution of the soil pollution problem by improving methods of fecal diagnosis; by studying such phases of the biology of the hookworm as the viability of the eggs and larvae in the soil; by determining the effects of the larvae of parasitic worms during their migration through the tissues of their hosts; by attempting to discover the thermal death point of protozoan cysts, the effects of moisture and chemicals on them and the relations between them and the insects that may be their vectors; by studies of relapse in malaria; by serologic investigations of this disease, and by biologic researches on mosquitoes.

These are all laboratory studies; but a rather intimate association with the International Health Board makes it possible for us to see the results of this work put into almost immediate practice, and we thus become, as it were, a part of the campaigns for the control of these organisms in the field. Frequent excursions are made by the laboratory men for the purpose of studying field conditions, and the field directors reciprocate by spending part of their time with us in the laboratory.

Finally, medical zoology has an important function in public health education. The ordinary physician has usually had but little training in public health subjects, and this generally does not include studies in medical zoology. Since most health officers are selected from among the physicians, the result follows that few public health officers are acquainted with the animal parasites of man and it becomes one of our duties to better this situation in every way practicable. Fortunately, the liberal bequest of the late Capt. Joseph R. DeLamar to Columbia, Harvard and Johns Hopkins universities has made it possible to bring before the physicians and laymen of the United States through public lectures, magazines, bulletins and other publications the latest knowledge in public health.

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Evolution in Medical Science.—The doctrine of evolution has scarcely received the attention it merits as a factor in modifying the opinions of medical science. So long as it was believed that the body, with all its natural functions, had been created from the first in its present condition, there was little room for inquiry into the origin of those functions, and still less into that of morbid processes. Darwin has changed all this, as a single instance will suffice to show. Metchnikoff's studies on the comparative pathology of inflammation have taught us that this is not a diseased state but a purposeful reaction against injury, gradually perfected in passing up from the lower to the higher animals. Almost without our being conscious of it, the idea of evolution has gradually effected a great change in the standpoint from which we view a large number of diseases, the symptoms and morbid changes in which we now understand as efforts of the body to maintain its integrity in face of the injurious agencies which threaten it.—F. W. Andrewes, *Lancet*, Oct. 23, 1920.

SUGGESTIONS REGARDING POSTMORTEM TECHNIC *

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CHICAGO

To add anything novel or as an improvement to the methods of making postmortem examinations is obviously difficult, owing to the fact that where they have been made daily for many years, virtually all possible routes of approach for exposing and examining viscera and other important structures have been tried.

In Austria and Germany, the technic for the postmortem examinations made as a part of medicolegal inquiries was many years ago enacted into statutes which prescribe even such details as the instruments to be used, the assistants, and the form of the protocol.[1] To a large degree, such methods have served as standards not only for medicolegal, but also for all other postmortem examinations, both in the countries mentioned and in America as well, modified, of course, by requirements which all agree are needed at times to suit the conditions of disease encountered.

It is of interest, therefore, to note that Westenhoeffer [2] opens his small atlas [3] of postmortem methods with the statement that "in Germany there is no generally recognized method for making postmortem examinations peremptory for all schools." The failure to have legal provisions in the United States for the methods for making medicolegal postmortem examinations, which would also state when and under what conditions such should be made and by whom, has always been and is still responsible for inefficient and inadequate prosecution of crime, injustice in civil prosecutions, and incorrect interpretation of disease. Moreover, the absence here of standards such as statutory regulations would provide has deprived postmortem examinations made for other than legal inquiries of the thoroughness and precision necessary to a proper knowledge of disease. This is well illustrated by the postmortem examinations made at times in all of our hospitals, both large and small, during which the head is not opened or other restrictions carried out, simply the curiosity of a clinician, frequently a surgeon, being satisfied, and by the failure to secure for postmortem examinations, those especially trained for such inquiries.[4]

For these reasons and also because I have employed for a number of years a method of making postmortem examinations which in most respects has been outlined by Letulle [5] and consequently is less widely known, it is hoped that a brief statement regarding it may prove an additional help.[6]

DETAILS OF METHODS

The head is opened first after a full description of the outside of the body,[7] and in these respects the methods commonly in practice have been followed. With the exposure of the middle ears, that part of each internal carotid artery which courses within and through the petrous portion of the temporal bones is usually partially or wholly exposed and should be examined carefully; with syphilis they may be diseased or both diseased and thrombosed. Examination of the interior of the nose and accessory nasal sinuses is conveniently carried out by sawing the lower half of the cranium sagittally down to the pars basilaris of the occipital bone, which is then split in the median line [8] with a chisel, when the two lateral halves may be spread apart.[9] These are later apposed and wired. This does not mar the features, and the only caution is that the sphenoidal and ethmoidal sinuses, hypophysis and body of the sphenoid bone be examined before the lower half of the cranium is sawed and split apart.

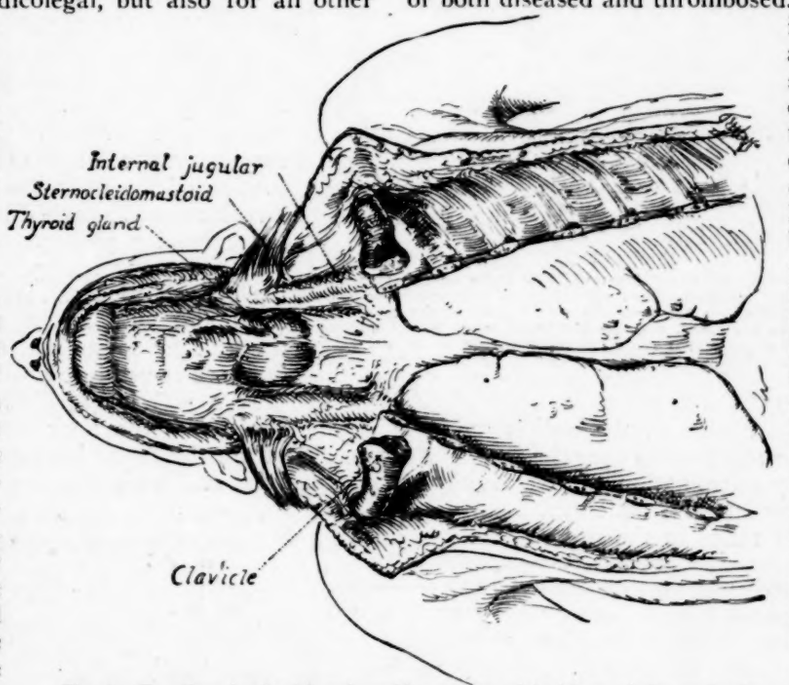

Fig. 1.—To allow for burial and avoid exposure of incisions of the neck, the midline incision is continued out on each side obliquely, all so as to be easily covered in dressing the neck and to allow a "cuff" to be dissected from the front of the neck and laid up on the face; this cuff remains on the face as soon as the dissection is far enough to lay bare a little of the lower part of the front of the mandible. By continuing this dissection so as to expose all of the front of the mandible, and sawing the mandible through in the midline and spreading the two parts widely apart, the examination of the mouth and nasopharynx is still more satisfactorily made, the mandible subsequently to be wired together in the midline. In this illustration, as well as in Figures 3, 4 and 5, conditions are represented as seen with the examiner on the right side of the necropsy table.

The trunk is then opened as usual with a midline incision in front (Fig. 1), unless it is desired at this time to remove the spinal cord. The upper end of the trunk incision is extended out obliquely on each side parallel with the lower border of the mandible and so low on the neck that, following repair of the body, the incision will be easily covered as a part of the usual preparation for burial. These incisions are continued to the back margin of the sternomastoid muscles or slightly beyond and, when necessary in

* From the Pathological Laboratory of Rush Medical College.

1. Virchow, Rudolph: Prussiches Regulativ für das Verfahren der Gerichtsärzte bei den gerichtlichen Untersuchungen menschlicher Leichen, Die Sections Technik, Berlin, 1893, p. 97.
2. At this time pathologist at the Moabit Hospital in Berlin.
3. Westenhoeffer, M.: Atlas der pathologisch-anatomischen Sectionstechnic, Berlin, 1908.
4. Ewing, J.; Wells, H. G., and Albert, H.: Report on the Teaching of Pathology, Tr. Assn. Am. Med. Colls., 1920, p. 136.
5. Letulle, M.: La pratique des autopsies, Paris, 1903.
6. A number of those assisting me subsequently made postmortem examinations after the methods to be described in cantonment hospitals during the war and, judging by reports which reached me, to the pleasure, in some instances, of capable pathologists casually present.
7. Charts useful not only as controls for the protocol but also valuable as graphic records may be procured from the American Medical Association.
8. Letulle splits the base of the skull a little to the right of the midline.
9. Harke: Ein neues Verfahren, die Nasen und Rachenhöhle mit ihren pneumatischen Anhängen ohne äussere Einstellung frei zu legen, Virchows Arch. f. path. Anat. **125**, 1891.

order to examine the lesions of the side of the face or back of the neck, they may be connected with the ends behind the ears of the coronal incision made to reflect the scalp and still be relatively inconspicuous when repaired. In this way the edge of the cuff is made (Fig. 2) which should be reflected up over the face.

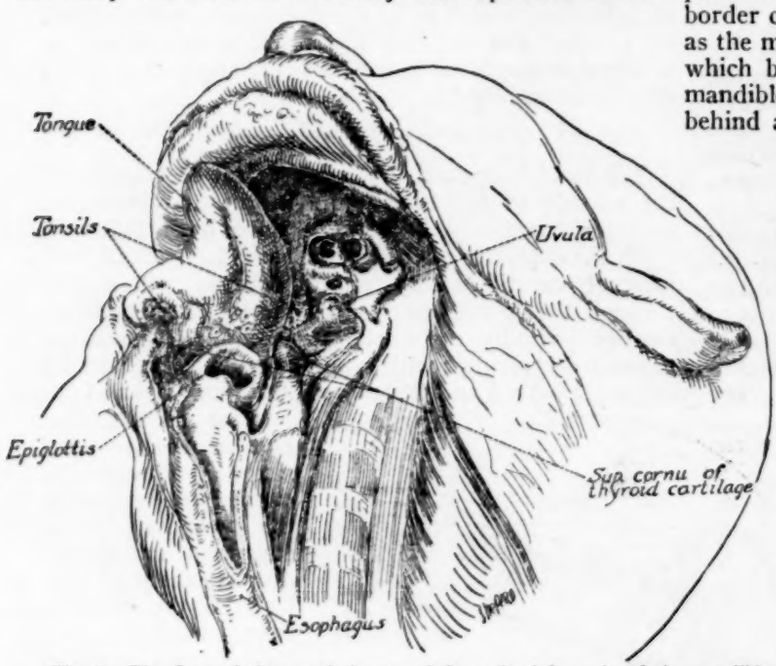

Fig. 2.—The floor of the mouth is opened from the left angle of the mandible forward to or slightly beyond the midline. Then all of the structures of the neck are cut away from the front of the cervical vertebrae and turned to the right, the mouth, nasopharynx, tonsils, etc., examined, and the pharynx opened in the midline from above downward. The neck structures are all easily returned to their former position and held in place by a subcutaneous stitch or two at the left angle of the mandible.

The usual preliminary examination of the cavities of the trunk and viscera of the abdomen, thorax and neck is then made in the order indicated.

It is important to keep in mind the ease with which clots washed free from large veins and lodged in the pulmonary artery, or clots formed there, may be loosened and dislodged in handling the heart or neighboring structures. For this reason a vertical cut in the pulmonary conus continued out into the artery is carefully made soon after the sternum is removed, and the presence or absence is determined of autochthonous antemortem clots or of clots the result of embolism of the intrapericardial portions of the pulmonary artery. It is the rule also at this time to ascertain the condition of the aortic isthmus by cautiously inserting the finger into a vertical cut preferably made one quarter of the way from the left and toward the right margin of the front of the intrapericardial part of the arch. Both of these examinations of these two large blood vessels are made with all of the organs except the brain or brain and cord still in situ.

Following examination of the thymic body, the innominate, jugular and subclavian veins, and the thyroid gland, the trachea is incised by a vertical cut median in front, and the incision carried up through the larynx, when these passages are cautiously examined for occlusion by foreign bodies or as the result of disease.

All of the organs and other structurues of the neck are then loosened (Fig. 3) from the left side of the neck and rolled over to the right. In order to accomplish this they are first cut away close to the lower border of the left side of the mandible as far forward as the midline in front or a little beyond by an incision which begins well back toward the left angle of the mandible. This incision is continued backward and behind all of the left tonsil, the uvula and the tissue between them, by following close to the back of the hard palate. When the structures of the neck are thus loosened at their cephalic end they are cut loose from close to the cervical vertebrae, beginning on the left side. In this manner they may be so turned over to the right that the pharynx and upper part of the esophagus lie uppermost; they are really turned with their backs to the front.

There is brought into plain view in this manner the entire front of the cervical vertebrae, the nasopharynx, roof of the mouth and pharyngeal openings of the eustachian tubes; if desirable, the vertebral arteries as they course upward in the cervical vertebrae may be exposed and opened. When examination of the neck has been completed, the structures still attached in a normal way, with the exception perhaps of the thyroid gland removed for weighing, are turned back when the body is repaired, into their former position; and with a few stitches in the deep tissues close to the left angle of the mandible, they are sewed into position.

If a still larger view of the mouth and pharynx is desired, the neck structures may be cut loose also from the lower border of the right side of the mandible; and with the tongue and floor of the mouth turned down a little way toward the thorax, then by sawing the mandible in the midline and spreading the two halves thus made widely apart, such a result is obtained, the mandible repaired by wiring or

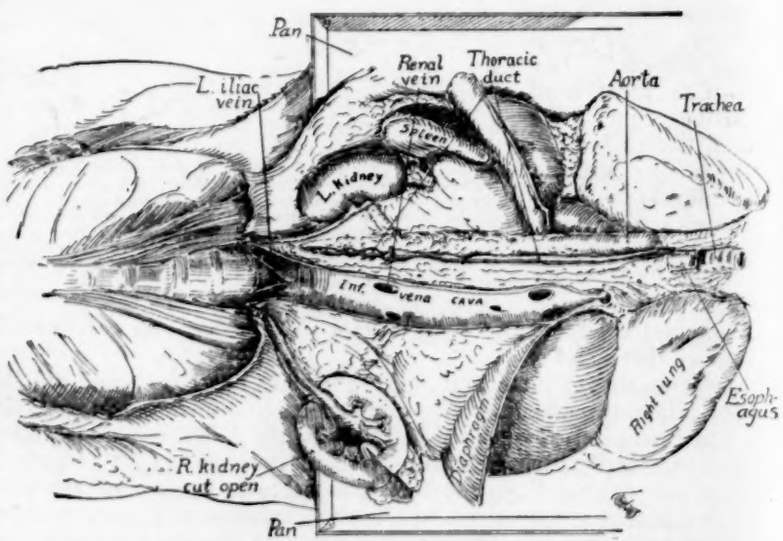

Fig. 3.—A graniteware or copper pan is laid across the thighs, and the organs of the trunk are dissected loose en masse and "turned down" on the pan with their posterior surfaces uppermost. In loosening them from the spine, especial care is exercised to bare the front of the spine; and in this way the receptaculum chyli and thoracic duct are not injured. The last mentioned are best opened from below upward because of valves, and the examination from behind begins with this duct and periaortic and iliac lymph glands, then the suprarenals, kidneys, ureters, inferior vena cava, renal, ovarian (spermatic) and hepatic veins, etc.

sewing through holes made in the bone, and the neck structures returned to position, as described.

The structures of the neck are then cut across at the root of the neck by first lifting the right lung out of the thorax and inserting the point of the knife close to the spine on the right side and at about the level of the first thoracic vertebra and cutting forward and obliquely across the neck cephalad to the mouth of the thoracic duct so that all of the duct remains with the trunk organs. The diaphragm is then cut loose from close to the thorax on each side, the thorax organs cut loose from close to the thoracic vertebrae, and with all of the thorax organs held up at first vertically, they are gradually turned down over and on to a pan placed across the thighs by continuing to dissect the abdominal organs in their turn away from the spine so far downward (caudad) that the back wall of the as yet uncut common iliac veins comes plainly into view (Fig. 3). In doing this, special care is required to keep close to the spine where the crura of the diaphragm are attached so as to avoid opening the receptaculum chyli unwittingly.

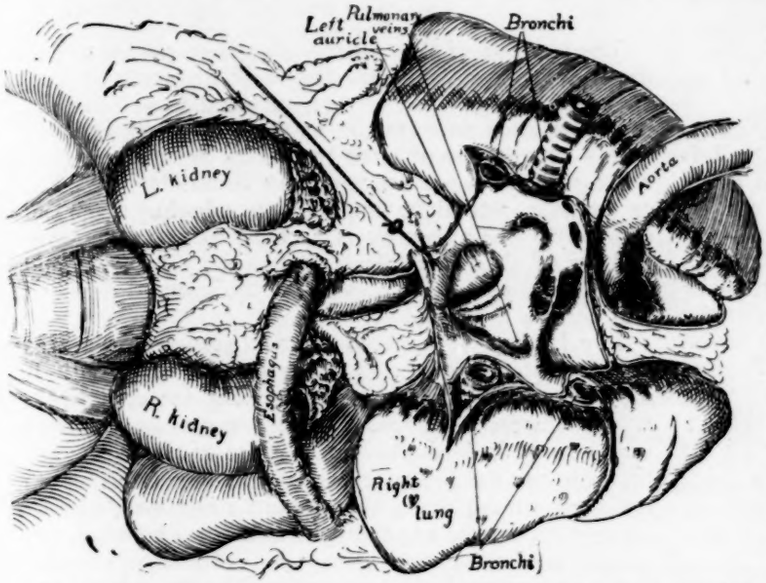

Fig. 4.—After the inferior vena cava and iliac veins (the latter not represented here) are opened, the aorta and iliac arteries slit lengthwise and reflected cephalad, the esophagus examined and laid caudad, and after the trachea, bronchi and tracheobronchial lymph glands are examined and the pulmonary artery and its branches far out into the lungs—all from behind; then the left auricle is opened as represented here, and the pulmonary veins are examined by opening them far out into the lungs. Then from the opened inferior cava, a cut is made straight up through the right auricle in the midline into the superior cava, in its turn laid open in the middle behind, when the right auricle may be examined as was the left.

I have then usually followed this order of examining the trunk organs: the thoracic duct and its abdominal cysternae, the azygos veins, inferior vena cava, hepatic,[10] iliac, renal and ovarian or spermatic veins, suprarenal glands, perirenal fat, kidneys and ureters, periaortic and iliac lymph glands, and the aorta and its branches below the diaphragm as well as other structures, e. g., celiac ganglions, vagus nerves, etc. Then the esophagus may be dissected loose from the tissues about it and turned caudad, and, if desirable, the iliac arteries and aorta in a similar way dissected from their connections and turned cephalad (Fig. 4). Then the examination is continued, still from behind, of the thorax organs, beginning with the tracheobronchial lymph glands, the trachea and main bronchi, pulmonary artery and veins, all of these (bronchi, arteries and veins) being opened as far out into the lungs as desired. Following the opening and examination of the left auricle, which is done with the opening of the pulmonary veins, the median incision behind in the inferior vena cava is continued up through the back of the right auricle into the superior vena cava, so that in its turn it is opened in its median wall behind.

Returning now to the abdomen, the fingers of one hand are slipped from the right side through the foramen epiploicum (of Winslow); and the inferior vena cava, still being uppermost, is cut across where it forms the back part of that ring. In this manner the ligamentum hepatoduodenale is exposed (Fig. 5) and the structures it contains are examined, beginning with the biliary and peripancreatic lymph glands, the bile ducts, the portal vein and its tributary veins, and the hepatic artery; then the gallbladder and its duct connections, the pancreas and the pancreatic ducts are examined.

The organs of the thorax and abdomen, still with nearly all of their mutual normal connections still intact, may then be returned to the cavity of the trunk and their examination continued from in front after the methods usually described in most accounts of postmortem technic, methods which include finally their removal for weighing and more particular examination and description as separate organs. These details are so generally known that no description of them is called for here.

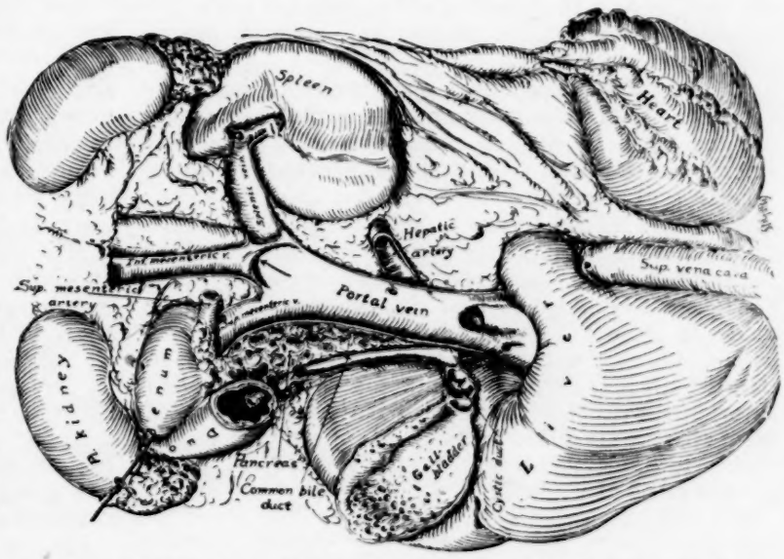

Fig. 5.—The distal end of the proximal segment of the duodenum, made by the cut across the duodenum, lies underneath the distal part of the common bile duct represented as open. The heart has "rolled out" from its median position underneath. After the structures uppermost in this figure are examined, the arteries from the celiac axis are opened, then the pancreatic duct and stomach; or, if desired, the latter may be examined from in front after return of the organs of the trunk, all still with their normal attachments in the main intact, to the body cavities from which they were "turned down," over the thighs.

Before the trunk organs are turned down over the thighs, the entire bowel mesentery and mesocolon, with

10. The statement by Hoover (J. A. M. A. 74: 1753 [June 26] 1920) with regard to the failure to examine the hepatic veins as a "routine at necropsy" is, in my opinion, too sweeping.

the exception of the extraperitoneal parts of the duodenum and rectum, may be removed in one piece for separate examination if so desired; they may also with equal advantage be examined in the usual way after the trunk organs are returned to the body; at times their preliminary removal is an advantage; at other times, with extensive disease of the abdomen, such as tumors or thrombosis or embolism of mesenteric blood vessels, it is advisable to allow them to retain their normal connections with other organs as long as possible.

Instructions usually given for the detailed examination of the pelvic organs from in front may be followed; or, before the trunk organs are turned down (Fig. 3) over the thighs, the pelvic organs can be loosened from the pelvis and with the perineum—and in the male with the testes and vasa deferentia—all, together with the trunk organs in one piece, may be lifted out of the trunk for examination. This has the advantage of allowing repair of the body to be begun by an assistant on an adjacent table when time is important.

ADVANTAGES OF THE PROCEDURE

It is assumed that the examination, as outlined, of the trunk and neck organs from behind is to be used, not to replace other methods, but rather to supplement them. There are many advantages to the procedure which will be apparent to all who are already accustomed to making postmortem examinations and who perchance may not have already become as familiar with the approach from behind. These aids afforded are mainly connected with the greater ease of thorough examination of the large blood vessels and their branches which lie so deeply in the trunk. The minute details of thrombosis of the iliac veins and ovarian veins, of embolism or thrombosis of the mesenteric or renal blood vessels and of the portal vein, as well as the condition of the lymph glands along the aorta and esophagus or about the trachea and bronchi, are all easily ascertained.[11]

It also offers exceptional opportunity to learn the conditions with pulmonary embolism when the emboli are too small to occlude either the main pulmonary artery or its first divisions, but instead lodge in branches of the third or more distal subdivisions; moreover, with the organs turned over and out on the thighs, the front of the spine and inner surface of the cavity of the thorax are exposed quite thoroughly. The one great advantage is that the examination can be made as indicated and at the same time the normal connection of the trunk viscera to each other maintained until it is decided when and at what point their severance is desirable, and also that such cutting of them apart is not liable to lessen in any way the opportunity to understand and properly interpret either disease or its absence.

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11. In this connection, the reader may consult Nuzum, Frank: Retro-Aortic Left Renal Veins, J. A. M. A. **62**: 1238 (April 18) 1914. LeCount, E. R.: Epibronchial Pulsions Diverticula of the Oesophagus, Tr. Path. Soc., Chicago **10**: 35, 1915.

Age Incidence in Cancer.—There is a widespread error in believing that cancer is rare before the fortieth year. Cancer is common at 40, and exceptional in patients under 20; but 12.5 per cent. of all recorded cases of breast cancer have made their appearance between the twentieth and thirty-fifth year of life. I have read reported cases of cancer in the breasts of girls of 11, 12, and 15 years of age.—W. Doolin, *Med. Press*, April 28, 1920.

THE ROENTGENOLOGY OF APPENDICAL OBLITERATION

A PATHOLOGIC OR A PHYSIOLOGIC PROCESS*

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The purpose of this contribution is to postulate that the filling of an appendix lumen in an adult at least 30 years of age with an opaque meal is sufficient to nominate such an appendix as the seat of chronic disease. The degree of such chronicity and the question as to whether such an appendix demands immediate or remote attention, and as to whether such an opaquely filled appendix is a cause of symptoms, are matters of shadow analysis, case history analysis, and the elimination of other lesions by differential roentgen and clinical analysis.

The history of appendical roentgenology is not as pertinent to this effort as was originally supposed. It may be well to state certain startling features which mark successful appendical roentgenology. There seems to be little doubt that the use of the fermented milk opaque meal is an essential. Previous to its general use in America, there were only isolated and meager reports of appendical shadows. The most successful accomplishment of appendical shadows occurs in laboratories where the fermented milk meal is used as a routine. I have succeeded repeatedly in securing appendical shadows by a fermented milk meal in cases that refused to give similar shadows with a carbohydrate meal of thick cereal or thin malted milk. It might be well to state as an axiom that for determination of motility, carbohydrate opaque meals are best, and for deformity shadows, the fermented milk meal is essential.

The second item of historical interest rests in the elective time after the meal of determining appendical shadows. Various authors give this as being from the sixth to the twenty-fourth hour. I have always maintained that the forty-eight hour period is the best time for the critical analysis of the shadows. In fact, I am inclined to believe that this point has served best to bring me to a point of view possibly too arbitrary and warranted to arouse criticism.

It is difficult to agree with those who find valuable appendical shadows in chronic appendicitis at the sixth to twenty-fourth hour, because I am confident that the appendix, especially when chronically involved, fills by antiperistalsis. Of course, certain appendixes will fill by position and sedimentation or by reason of the fact that they are unusually patent; and these will fill early. But the best percentages of fillings are obtained at the forty-eight hour. interval. This late filling is an argument itself in favor of filling by antiperistalsis.

Usually at the twenty-four hour period, the colon is well delineated by the opaque meal and the appendix may show a filling or not. But antiperistalsis of the colon does not have an opportunity of exerting its influence on a given meal until after the twenty-four hour interval of its ingestion, and it is during this second twenty-four hours that antiperistalsis gradually and effectually forces the opaque material into a patent appendix.

* Read before the Section on Gastro-Enterology and Proctology at the Seventy-First Annual Session of the American Medical Association, New Orleans, April, 1920.

It is agreed by most investigators that the following points are pertinent in the analysis of appendical shadows:

1. Interrupted filling shadows, caused by the presence of old nonopaque fecaliths or residues.
2. Narrowing of the lumen at the cecal end or along the appendical canal.
3. Bulbous end and narrowed neck.
4. Adhesions which kink, bind or distort.
5. Residues in the appendix after the cecum has relieved itself of opaque shadows.
6. Distinct tenderness over the appendical shadow.
7. A fixed appendical shadow in any part of its outline except the cecal end.

It is easy to agree to all of the preceding points, and there has been ample and sufficient surgical and pathologic proof of these points. But there is not agreement that the mere filling of an appendix, after the individual is 30 years of age, is sufficient evidence to establish it as pathologic, the degree of pathologic interest depending to a great extent on the points as outlined in the preceding paragraph.

Imboden and Cohn state that the probable reason the normal appendix is not always visualized is that it fills and empties between observations, and that the mere presence of some of the opaque mediums in the appendix is no indication of chronic disease. George and Gerber state that they succeed in demonstrating the appendix in about seven out of every ten cases examined, and add that in many cases the normal condition was verified at a later operation for other purposes

On the other hand, we find that Case states that barium in the appendix is an abnormal phenomenon. Groedel states that the appendix which can be demonstrated by this method is pathologic (only three cases). Squires thinks we are justified in saying that the cecal contents do not normally pass into the lumen of the appendix.

It is quite certain that the appendixes of children fill easily. The appendix may be filled even by enema in children. The adolescent appendix usually fills by meal and may fill by enema. The adult appendix rarely fills by enema, and then only if widely patent, favorably situated, or lacking muscular tone through disease or paralysis.

When we come to the normal appendix—30 years of age—we come to the mooted question of this argument.

My contention is that the normal appendix in an individual over 30 years of age is in a process of obliteration which is physiologic, and that it no longer functions and, therefore, no longer accepts colonic contents.

Necessarily, this argument rests on certain hypotheses:

1. Is the appendix an organ of physiologic involution terminating in obliteration?
2. Is the appendix a lymphoid structure with a function?
3. Does the appendix approximate and parallel the tonsils in its normal life history?
4. May the appendix be considered an abdominal tonsil?

It may be well to discuss these questions in another order from their setting above.

1. *Is the appendix a lymphoid structure with a function?*

This necessarily eliminates the possibility of the appendix being a vestigial organ. Berry, the Dublin anatomist, furnishes excellent studies to support the position that lymphoid tissue is the characteristic feature of the cecal apex, and it assumes the function of a lymphatic gland; that it is is not equally functional throughout the whole life but that it develops and functions during the first half of life and then declines in functional activity. Berry states that the appendix obliterates as a pathologic process, and yet as one reads his complete writings on the subject, his arguments appear to prove the opposite, when he states that "lymphoid tissue is, therefore, a tissue of the growing animal" and "the functions of the human appendix are the same as any other collection of lymphoid tissue in any other part of the body."

2. *Is the appendix an organ of physiologic involution terminating in obliteration?*

Three types of appendical obliteration are possible: (*a*) physiologic, (*b*) pathologic and (*c*) congenital. The congenital may be dismissed as an anomaly. The pathologic may be the result of cicatricial changes developing as a consequence of previous inflammations. The physiologic obliteration may be the natural and normal development of the life cycle of the appendix. The lymphoid character of the appendical tissues, the function of the appendix and the diseases of the appendix seem to indicate that physiologic obliteration is the normal cycle of an appendix.

The appendix may be looked on as the abdominal tonsil. When one so considers the appendix, it is quite easy to parallel its physiology and pathology with the faucial tonsil. The faucial tonsil normally—that is, without the history or occurrence of inflammations and in the absence of chronic inflammatory remnants, such as cicatrices, thickenings, hypertrophy and crypts—proceeds to a physiologic obliteration at the age of about 30 to 35. The age of obliteration may vary normally, and may be delayed or hastened by slight inflammatory reactions. The function of the faucial tonsil may be denied by many; but investigation of the literature and clinical research indicate an influence of tonsils on bronchial unrest; and growing individuals without tonsils frequently suffer from a miserable, chronic bronchitis. It is granted that the functioning appendix and tonsil are not an essential but a contributing factor to excellent health.

The arguments against physiologic obliteration of the appendix have been developed by pathologists or others working intimately with surgical clinics. The principal American sources are McCarty of the Mayo Clinic and Pfeiffer of Deaver's clinic.

The arguments supporting physiologic obliteration originate in anatomic laboratories under such names as Ribbert, Zuckerkandl and Oppenheim.

Two questions immediately present themselves to the investigator, to wit:

1. Has the idea of physiologic obliteration obtained in the dissecting room where the material was the natural run of humanity?

2. Has the idea of pathologic obliteration found support among those attached to clinics where the specimens are obtained only as the result of intrinsic appendical disease or in the course of other abdominal operations? Is it not logical to accuse such appendixes of being pathologic? It would be surprising if a pathologic condition could not be shown. This is not an accusation of pathologists' skill, but a compliment to surgical judgment in their removal.

Therefore, may the argument be restated: The appendix is an organ of physiologic function, and

obliteration occurs as a natural consequence of its tissue characteristics. An appendix filling by opaque meal in an individual over 30 years of age is sufficient evidence of its pathologic persistence beyond the physiologic limits. The mere presence of such shadows does not indicate any necessity of surgical intervention without careful analysis of the character, duration, extent of such opaque filling, and clinical study of the given case. In the absence of other demonstrable disease and even possibly in the absence of direct clinical symptoms, an opaquely filled appendix in an individual over 30 years of age is an indication of its chronicity and should be as carefully considered as the focal origin of gastro-intestinal symptoms, as the faucial tonsil and teeth in other systemic disease.

My study of this subject leads me to believe that:

1. The appendix is a functioning organ.
2. It is a lymphoid structure.
3. It receives and expels colonic contents normally during childhood and adolescence.
4. It proceeds to physiologic obliteration in adult life.
5. This obliteration is normally accomplished at about the age of 30.
6. Opaque filling of the appendix is easily secured in childhood and adolescence by meal and enema.
7. Appendical filling is a matter of sedimentation, widely patent os and antiperistalsis. The three operate in childhood and adolescence. Antiperistalsis filling is more apparent with increasing years, and is the essential element in the filling of appendixes that are not obliterated after the age of 30.

ABSTRACT OF DISCUSSION

DR. R. WALTER MILLS, St. Louis: The aid afforded by the roentgen ray in the diagnosis of appendicitis is not yet definitely established. The determination of the existence of a definite gastric lesion is proof of a clincal pathology, but the demonstration of a pathologic appendix is not proof positive of a clinical condition, a situation without precedence in abdominal diagnosis. Dr. Skinner finds confirmation for his idea that most appendixes are abnormal. Pathologists teach that there are no normal appendixes. The fact that the majority of appendixes are tender to pressure further suggests that we are dealing with an abnormal organ. Physiologists claim that it is impossible for an appendix to be inherently tender. I can say positively that the inflamed appendix is inherently tender. The propaganda of referred pain with reference to the appendix will not stand the test of extensive observation. Roentgen-ray aid in the diagnosis of appendicitis must be associated with clinical findings. An appendix may be structually normal from a roentgen-ray standpoint, yet be dangerous clinically.

DR. MARSH PITZMAN, St. Louis: There is no such condition as surgical appendicitis without an organic stricture of the lumen. Appendicitis may exist from a pathologic standpoint, then stricture is absent. For example, in typhoid fever and presumably in any infection of the cecum there is an associated catarrhal inflammation of the appendix, which, however, does not call for surgical intervention. While everybody has recognized the causative relationship between organic stricture and surgical appendicitis, the negative has never, before my publication, so far as I can find out, been definitely stated and maintained. The stricture may be located flush against the cecal wall and the pathologist would naturally report appendicitis and never realize that a stricture had been the cause. It is only by cooperative study that we can find and eventually determine the truth.

DR. D. F. JONES, Boston: I agree with Dr. Pitzman in his views on appendicitis. Many years ago McBurney said that appendicitis was a question of drainage of the appendix. This is in agreement with Dr. Pitzman's idea.

The term chronic appendicitis should be limited to those cases in which the appendix must be removed to relieve the patient of symptoms. The roentgenologist, surgeon and pathologist are at present in a vicious circle, as the roentgenologist makes a diagnosis of chronic appendicitis, the surgeon removes what is to all appearance a normal appendix, the pathologist examines it and reports a chronic appendicitis. The appendix may show a minute healed ulcer, and, perhaps, a slight increase of round cells in its wall. It is not at all probable that that was what the roentgenologist saw, and in many cases the condition was not sufficient to cause the symptoms of which the patient complained, so that both have been making a diagnosis on insufficient data. Would it not be well for the roentgenologist, surgeon and pathologist to get together and decide whether the condition found at operation was shown by the roentgen ray, and whether it could cause the symptoms manifested?

DR. W. H. STEWART, New York: I have been able to visualize the appendix more often on the ninth than on the forty-eighth hour. As a matter of fact, frequent fluoroscopic observations at different times are often necessary before the appendix can be outlined. Any definite information in regard to the condition of the organs in the right iliac fossa can only be obtained by fluoroscopic examination, which must be done in such a manner that one can get right down in the lower right quadrant and manipulate the appendix. The question of obliteration at the thirtieth year I think is rather doubtful, for in at least 60 per cent. of my cases at all ages, during one period or another of the examination, the appendix has been visualized. There are certain points in the recognition of pathology of the appendix that roentgenologists must observe. First, the immediate information obtained by direct palpation under the screen in which we look for kinks, adhesions or unusual sensitiveness; second, observations covering the function of the appendix. In my opinion, any appendix which retains barium for three days is pathologic. In one of my cases the barium was retained in the appendix for forty days. I have not had the experience Dr. Mills described in reference to the tenderness. Frequently no tenderness is present, or indication of pathology. In reference to emptying, in at least three of my cases, the appendix partially or completely emptied itself while observations were being made on the fluoroscopic screen.

DR. I. O. PALEFSKI, New York: Several points require emphasis in connection with the roentgen-ray diagnosis of chronic appendicitis. It is not merely the visualization of the appendix, but the prolonged retention of the barium within its lumen after the cecum is almost or completely empty that is suggestive of mechanical interference with the drainage of the appendix. I agree, therefore, with Dr. Skinner that the proper time for the examination of the appendix is beyond the twentieth hour after the oral administration of the opaque meal. It is best to examine the patient at six hour intervals to determine the emptying time of both the cecum and the appendix. The demonstration of the appendix by the barium enema is hardly of diagnostic significance as it is probably brought about by overdistention of the cecum. The visualized appendix, if due to an inflammatory process, must be associated with abdominal tenderness corresponding to the location of the appendix. I recall only one instance as an exception to this rule. Different degrees of pressure in the right iliac region may have to be employed to elicit such tenderness. Finally, when two or more attempts fail to demonstrate the appendix, although there is persistent tenderness in the right iliac region on repeated examinations, a retrocecal appendix is strongly suggested.

DR. EDWARD H. SKINNER, Kansas City, Mo.: Two expressions have been brought up in this discussion which I prefer not to see used: One is "roentgen-ray diagnosis" and the other is "visualize." The roentgen ray simply provides certain findings which must be correlated with the clinical study of the case, hence we should not use the term "roentgen-ray diagnosis" so indiscriminately. As to the term "visualize": a better word would be to "visiblize" the appendix, because

to "visualize" is to get an idea. I am not at all impressed with appendiceal shadows which can be demonstrated at an early period in the examination. It is difficult to study the appendix shadow when the opaque meal is in the cecum and ileum, and the information obtained at that time might help you in your report on the findings when the appendix itself is seen more clearly, that is, when that part of the colon and the small intestine in the right iliac fossa is not occupied with other opaque shadows. As to the question of the emptying of the appendix while it is being viewed under the fluoroscopic screen: I have not been able to parallel the findings of many other reporters on this. In only a few cases have I been able to move the shadows in the appendix by manipulation, and then the appendix was large and boggy.

It really does not make a great deal of difference in the interpretation of the appendiceal shadows whether the appendix does obliterate itself.

WHAT ARE THE CONTRAINDICATIONS TO PROSTATECTOMY?

OBSERVATIONS BASED ON A SERIES OF ONE HUNDRED AND NINETY CASES OF ADENOMATOUS PROSTATE WITH OPERATION BY THE TWO-STEP METHOD *

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BUFFALO

Prostatectomy for benign enlarged prostates has long since passed the experimental stage. As the operation has been more or less standardized, the risk and results can be better determined. No hard and fast law can apply to operating on a man. The mortality of the general surgeon throughout the country is about 25 per cent. for prostatectomy. This percentage decreases with the ability of the surgeon to less than 1 per cent.

First, let us consider the various important causes of mortality to ascertain which, if any, are necessarily a cause of death. The principal cause is lack of kidney function, 60 per cent. of the mortality being occasioned by uremia. The condition is brought about principally by the back pressure arising from the obstruction by the enlarged prostate. A nephritis may also complicate the condition. We know that if the obstruction is removed the function will improve. This can be accomplished temporarily by (1) an indwelling catheter; (2) frequent catheterization, or (3) cystotomy.

An indwelling catheter is borne well only by a few. Because of the congestion of the prostate, the catheter usually becomes so irritating that three days is about the limit of endurance.

Frequent catheterization needs the attention of a physician or a specially trained nurse. The greatest care must be given to gentleness as well as asepsis. Usually after a few days the congested urethra rebels, and bleeding follows each catheterization. False passages may result. Epididymitis is a common complication of both this and the former procedure.

Why not do the cystotomy primarily? Under local anesthesia it can be performed in fifteen or twenty minutes with no more pain to the patient than he frequently experiences from a catheterization, and without any shock. Under local anesthesia a surgeon can take all necessary time in selecting the highest point of the bladder for opening. With the cystotomy finished, more than half of the operation has been done. The patient can then comfortably wait a week or a month while being prepared for the second operation. Why is this method not more frequently used? I quote a prominent surgeon in reply: "Local anesthesia I have had no experience with, my time being too much occupied by numerous operations to permit wasting any of it in practicing this form of anesthesia." This attitude I believe is the secret of the difference between success and failure. These old, anemic, feeble men need more care and attention than the ordinary surgical case, and it is the careful preparation before and the watchful attention afterward that spell success or failure. It would be better if the surgeon who has only a few minutes at his disposal in the operating room to give to these cases and then turn them over to an assistant to care for should select younger patients for his operating. If the chief will outline the procedure for the preparation of the patient and follow up the after-care to the minutest detail, the assistant or any one with a fair knowledge of surgical technic can perform the technical operation. I make this statement only to emphasize that the important stages in a prostatectomy are before and after the actual removal of the gland.

Now that the back pressure has been relieved temporarily, we proceed to stimulate the kidney function by sweat baths, bowel washes, bladder washes and also by crowding fluids, the only contraindication of forcing fluids being some cardiovascular complication. We have the phenolsulphonephthalein test to guide us as to excretion, and blood nitrogen as to retention. As a rule, these excellent functional tests balance, the exceptions being few. Time being given, these men will all improve to a point at which they are safe for operation. The average time is about a week, although in some cases it may be prolonged to three months.

Shock is next in order as the chief cause of death. If the bladder is drained a sufficient time the patient, although very weak when first seen, will improve to such an extent that he can withstand the short general anesthesia of five to eight minutes without any shock.

Freyer has laid stress on the importance of a short general anesthetic. He believes this the most important factor in reducing his mortality. In the early days from one-half hour to an hour was frequently occupied in enucleating the prostate. Now from five to ten minutes is considered ample time for the anesthetic. By the two-step method more than half of the operation is performed under local anesthesia when time is not a factor, and the patient suffers no shock. At the second operation the original wound is stretched open and the prostate enucleated under a very short general anesthetic.

Hemorrhage was more commonly a cause of death in the past, when continual irrigation was kept up, because there exists no way of knowing the extent of the bleeding. The patient lost a large quantity of blood without its being realized. Frequently, patients who were thought to have died from shock really died from hemorrhage. Hemorrhage is more likely to occur with a one-step operation than with a two-step. As I have pointed out in a previous paper, at the second operation it is unusual to find that a large, congested prostate has shrunk to one-half its former size. Packing may be used to fill the prostatic cavity, but I prefer the Pilcher modification of the Hagner bag. One should select the proper size bag for the cavity.

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Pâtients who present themselves with a poorly balanced cardiovascular system, showing low pulse pressure, are much improved when the back pressure on the kidney is temporarily relieved. Any of these patients can withstand the slight reaction of a cystotomy, after which with rest and appropriate treatment their hearts will pick up, and any of the cardiovascular conditions will improve sufficiently under drainage and rest so that the second operation can be performed without risk.

In only exceptional cases should a surgeon attempt operation until he has personally examined the bladder with a cystoscope, so many important factors may be overlooked. The examination of the prostate by rectum may not show any enlargement, yet the cystoscope will demonstrate a median lobe, calculi in the bladder, or a diverticulum. If the patient has a clear urine of low specific gravity under 1.005, he is a poorer operative risk than the patient with an infected bladder. It usually means that he has a contracted kidney in addition to his enlarged prostate. When a large calculus or numerous smaller ones are discovered by cystoscope they can be removed at the time of the cystotomy and will permit the accompanying cystitis to be treated during the interim. If a diverticulum is present it should be carefully investigated to discover whether or not it contains a calculus, which is a frequent occurrence.

The size of the diverticulum should be determined by cystogram. As a rule it is best to operate on these patients in two sittings, first the prostatectomy and later the diverticulum. The length of time necessary for both operations requires too much anesthetic for safety with most of these old men, and I have found it wiser to postpone the operation for diverticulum until the patient has somewhat recovered his strength.

The urethra frequently has been torn so badly in attempting to catheterize that it is very difficult or impossible to pass a catheter or cystoscope. It may also be the site of stricture. After an indwelling catheter has been used, there is usually more or less of a urethritis, which sometimes becomes very marked.

A large, adenomatous prostate is very much easier to enucleate than a smaller, fibrous one.

Advanced age is no contraindication for the operation. I have successfully operated on a patient 95 years old. The young man of 50 or thereabouts who has an obstruction, as a rule, is a poorer surgical risk than a man fifteen or twenty years older.

A patient with a distended bladder wants immediate relief; the method is not of much importance to him. After he has recovered from his operation, if he has not regained normal control or a fistula remains, his appreciation and regard is changed to fault finding, and the entire community hears it.

In my own experience with two routes—infrapubic or suprapubic—I have had by the infrapubic a few cases of incontinence and a few with fistula that would not heal. With the suprapubic route there has been no loss of control, and the longest time a fistula has remained open has been ten weeks. The operation from above is posterior to the sphincter, and unless the surgeon is rough or careless, there is little excuse for injuring the sphincter.

The advantage of suprapubic and perineal operations, respectively, which have been frequently discussed, may be thus summed up:

The average functional results of the suprapubic operation are better than those of the perineal. Because of its simplicity, general surgeons with little experience have used the suprapubic method, and their mortality has made the relative mortality of the suprapubic operation slightly higher than that of the perineal. The perineal operation is attempted only by skilled urologists, which accounts for the relatively lower mortality. I believe that the suprapubic operation performed in two steps, with careful attention given to the preoperative and postoperative care, is the operation of choice.

In a consecutive series of 190 unselected cases in which the two-step method was used for removal of the adenomatous prostate, there occurred but one death.[1] This patient died of an embolus two weeks after his operation. The longest period necessary between the first and second operation was ten weeks. The average time was seven days. The average length of time from the cystotomy to the healing of the wound and the voiding by urethra was thirty-four days.

It has been said that the only safe place for an appendix is in a jar of alcohol. The same adage applies equally to an enlarged prostate causing residual urine. With proper preparation and after-care, I believe there are no contraindications to prostatectomy.

504 Electric Building.

ABSTRACT OF DISCUSSION

DR. HERMAN L. KRETSCHMER, Chicago: Dr. Gardner said that most of the deaths in these cases are due to renal insufficiency. That has been my experience also. I was glad to hear him say that these patients did not bear the indwelling catheter well. Sometimes we find one who can bear it for weeks, but, as a rule, it sets up pain and bleeding. We were told that in New York patients wear the indwelling catheters for weeks at a time without distress. Such has not been my experience. Most of the patients who die of shock are those who succumb to hemorrhage. It is now generally recognized that following the preliminary operation the prostate shrinks and is very much smaller than at the time of the first operation. The cardiovascular symptoms have given much trouble in patients with myocarditis and high blood pressure. I have noticed in taking the blood pressure before and after operation that there has been a marked change in the systolic blood pressure. The largest drop I remember was sixty. I do not remember just what Dr. Gardner said about the cystoscopic picture, but in some of my cases the cystoscope has not shown so very much change in reference to the neck of the bladder. In many of these cases I have used the old oblique vision cystoscope which can be used as a urethroscope, and very frequently I have been able to demonstrate the presence of intra-urethral nodules.

DR. ARTHUR B. CECIL, Los Angeles: In my opinion the method of drainage plays a great part. Suprapubic drainage is in some instances followed by serious consequences. The comfort or discomfort of a retention catheter depends very largely on how the catheter is cared for and even how it is fastened in. In the matter of diverticula, it seems to me very doubtful as to whether it is advisable after a good recovery from prostatectomy to remove diverticula at a later date. The mortality rate which Dr. Gardner reported is certainly not bad. Some points in regard to prostatectomy which have not been sufficiently considered. We are inclined to think that a prostatectomy has been surgically well done if the patient is able to void urine freely, but it has been my experience to see a number of men on whom a suprapubic prostatectomy had been done and who continued to have considerable distress with burning bladder and discomfort on urination. In my opinion, one of the causes for this dis-

1. Aug. 20, 1920: Since reading this paper, I have operated on eighteen additional patients successfully.

comfort is the immobilization of the bladder high up to the abdominal wall. The tug on the bladder is well evidenced by the depth to which the suprapubic wound is many times found to be drawn, and the tugging of the bladder on the abdominal wall must play a great part in the continuation of cystitis and bladder discomfort. Gynecologists are very careful to close the abdominal wall in such a manner as to prevent the bladder from being caught in the abdominal wound, and yet we take the bladder and attach it to the abdominal wall in doing suprapubic prostatectomy. Perineal fistula does not follow Young's perineal prostatectomy when this operation is done in a scientific manner. I have not seen a single case. In regard to incontinence of urine, I have studied this question with a great deal of interest. It is very definite that the external sphincter muscle alone can perform all the functions of normal retention of urine. Incontinence of urine never follows the punch operation in which the internal sphincter may be divided. It is also definite that the internal sphincter muscle, if uninjured, can control the urinary function. This is evidenced by the fact that incontinence of urine never follows division of the external sphincter muscle in external urethrotomy. Thomson Walker was perhaps the first to point out that the internal sphincter muscle may be rendered incompetent by the growth of an adenomatous prostate within it. This incompetence was later confirmed by Hyman, and Wallace and Page, who demonstrated the incompetent internal sphincter muscle by injecting the bladder with collargol after prostatectomy. It is, therefore, perfectly clear why incontinence of urine should follow the Mayo type of median perineal prostatectomy, for in this operation the external sphincter muscle is cut, and the internal sphincter in many instances is rendered incompetent by the growth of the tumor within it. Incontinence of urine does not follow Young's perineal prostatectomy because the external sphincter muscle is preserved.

DR. E. G. BALLENGER, Atlanta, Ga.: Generally speaking, the two-stage operation is preferable to the one-stage operation. At first I reserved it for those who were in bad condition, but I now employ it in every instance. The first stage can be done under local anesthesia and carries the patient so far along toward recovery that even in the case of a man who is considered a good risk it is a wise plan to follow. My experience has not coincided with that of Dr. Cecil in regard to the burning pain that follows some of the cases he described. I do not see how there could be a tugging or dragging on the abdominal wall by the bladder sufficient to pull this tissue in. I think that it is the contraction of the scar. In my experience, the results from this operation are most satisfactory, and, as a rule, the patient is not kept in the hospital more than a month, or possibly five weeks, and he is out of bed much of this time.

DR. HARRY A. FOWLER, Washington, D. C.: In listening to the paper and the discussion I have been impressed with the uniformly good results obtained by the various operative methods described. It occurs to me that after all the various technical details described are not so important, since each gives equally good results in the hands of different operators. If certain general principles are scrupulously observed, the minor details of technic are not so important. It is curious to hear of the difference in sensitiveness of the urethra in different parts of the country. We have heard that in St. Louis, New York and now in Los Angeles the urethra is very insensitive, but in Buffalo, Chicago, and, I may add, Washington, the urethra is very sensitive. We have not been able to secure drainage by the retention catheter for any considerable time without producing a good deal of discomfort; so we are in the habit of doing a preliminary cystotomy under local anesthesia, as described by Dr. Gardner. This is a simple procedure and is painless, except in cases of small contracted bladder. As Dr. Gardner has pointed out, all contraindications to operation are relative and can usually be removed. A patient had such marked myocarditis that an operation was considered inadvisable, and he was put on intermittent catheterization. This patient catheterized himself for a period of four years, when, as usually happens, an emergency arose—we were unable to pass a catheter. I did a two-step prostatectomy and saved the patient. In regard to packing: Squier tells us that packing is unnecessary and that he never loses a patient from hemorrhage. I rest very much more comfortably if I know that the hemorrhage is controlled by packing. I have never resorted to the use of a bag because gauze is always handy. I do not find the removal of the gauze pack as painful as some would have us believe, and hemorrhage is controlled by a good solid packing. There is one minor objection to the two-stage operation and that is, that in an obese patient after the preliminary cystotomy the abdominal wall is more rigid and resistent at the second operation. It is then somewhat more difficult to reach the deep-lying prostate comfortably. However, this slight objection should not weigh against the advantages of the two-step operation.

DR. JOHN J. GILBRIDE, Philadelphia: Dr. Gardner did not discuss infection as a phase in the mortality, yet he seems to have eliminated it.

DR. A. J. CROWELL, Charlotte, N. C.: Dr. Gardner's results are nothing more than we should obtain regularly if we give the time and attention to preoperative and postoperative care. That is the keynote to success. We should not lose patients following prostatectomy, except from some unusual accident. Dr. Gardner reports 190 cases with one fatality, the prostatectomies being for adenomatous growths. I have had 145 cases with one death, and I can include carcinomatous as well as adenomatous glands. As to drainage, it is important to drain for some time before operation. It is true, as Dr. Fowler has said, that it seems that the urethra shows an undue sensitiveness in different parts of the country. In North Carolina we have practically no trouble, except in the carcinomatous cases, and that means about 20 per cent. We do have some trouble in draining the bladder with the carcinomatous gland. Otherwise, the indwelling catheter gives very satisfactory drainage. It is important that the catheter be placed at the right distance into the bladder. I think tolerance is largely dependent on that.

DR. WILLIAM E. LOWER, Cleveland: Prostatectomy should never be considered an emergency operation. Relief can be given for retention without doing an immediate prostatectomy. The preliminary operation and the preoperative and postoperative care are of the greatest importance in these cases and are largely responsible for the splendid results which are being obtained. In all cases in which there is a large amount of pus in the urine, and it does not clear up readily by irrigations, it is advisable to make a roentgenogram of the kidneys and see whether or not there may be an infection from stone which keeps up the suppuration, or whether diverticula of the bladder cause it. On several occasions I have found the cause of the pus to be an infection of the kidney with calculi and I have been obliged to operate for their removal. I have not found much difficulty with indwelling catheters. One can usually tell within a day or two whether the catheter is going to be tolerated by the amount of reaction that follows. If it is not tolerated, a suprapubic cystotomy should be done. In many of the cases, however, it is not necessary to do a cutting operation, a suprapubic puncture is sufficient for the insertion of a catheter. Dr. Gardner did not speak of what may happen when a very much overdistended bladder is released. In such cases the patient sometimes collapses, and an acute congestion of the kidney results followed by suppression. With a suprapubic puncture, the release of a distended bladder can be made much more gradual. I believe that most of the so-called shock cases have been due to hemorrhage. It is most important that hemorrhage should be checked before the patient is sent back to the ward. I never send a patient back to his bed until I feel sure that the hemorrhage is stopped. This takes a few minutes longer, but it is much better than to try to stop a hemorrhage in the ward. It is a mistake to put on a large dressing over the wound for a rather extensive hemorrhage may occur before it can be discovered. One kind of case in which we do not get the results that the patient hopes for is the one in which there has been atony of the bladder following a prolonged distention. In such cases residual urine may still continue after the prostate is removed. The route chosen for removal

of the prostate depends on the operator. I use the suprapubic route because it seems to me to be the best method of completely removing the obstruction and also for caring for any other intravesical condition which may need attention. The mortality rate is being constantly reduced, and the preliminary operation together with the preoperative and postoperative care are bringing the results.

DR. VICTOR D. LESPINASSE, Chicago: In considering the mortality among patients that have been operated on for prostatectomy by the suprapubic operation, one of the points that has been overlooked in this discussion is the infection that is practically always present. If we operate on these men by the suprapubic route, we open up new tissues to infection in two situations, suprapubically and at the prostate site. When we do the suprapubic operation, we accomplish two major things: the patient is vaccinated, as it were, to his own infection by the infection of the suprapubic wound. Thus he is rendered more resistant to this same infection later when the prostate is actually removed. Edema and congestion of the prostate itself goes down while the suprapubic drainage is functioning. Consequently, when we actually remove the prostate, the clinical course is very much smoother and frequently afebrile.

DR. JAMES A. GARDNER, Buffalo: I have questioned in my mind whether uremia is the most common cause of death or whether it is hemorrhage. I am inclined to believe that it may be hemorrhage. In the old days when we used the continual flow to take care of hemorrhage, or when we permitted the use of such thick dressings that the patients sometimes bled to death in the dressings, we did not realize how much loss of blood there was. Since we have paid more attention to the bleeding at the time of the operation we have had much better results. The size of the bag which fits the cavity should be selected carefully. If it is too small the torn edges are not pulled in and the bleeding continues. I have found that filling the bag with water is more satisfactory than using air, as Dr. Hagner has suggested, because I can tell at the time that I release the water whether there has been a leak. The indwelling catheter proposition is interesting. I have found that patients in our section do not stand it so well before operation as has been reported from other districts. I had an assistant who informed me that he had always used an indwelling catheter before operation and that his chief frequently permitted patients to go home and remain two or three months while getting in shape, but in my office there was the usual complication of epididymitis with such painful urethritis that the indwelling catheter had to be discontinued. I agree with Dr. Lower that there are many cases in which a diverticulum is present, and if after the removal of the prostate the bladder drains well enough there is no necessity for operating on the diverticulum. Many diverticula hold sufficient residual urine that they keep up an infected bladder and then it is necessary to operate. I stopped using the perineal route because after doing it as well as I knew how, I had a certain number of fistulas which would not heal, and while patients were grateful for the relief while they were in the hospital, they had trouble after they went home. Some of them were only incontinent when they laughed or coughed. With the suprapubic route I have seen no fistulas that would not heal. With the use of local anesthesia, the great majority of patients have no pain at the time of operation. Patients with a fat abdomen are the ones that complain. The pulse rate following local anesthesia will rarely increase more than five beats. The men who do the two-step operation but do the first step under general anesthesia miss the important point. The first step under local anesthesia saves the patient from shock. Probably the reason I have no trouble from suddenly reducing the internal pressure at the time of doing the first step is that I have a large drainage tube. As a rule, I do the first step the day after the patient enters the hospital, and I have seen no serious results. After each operation, the lower limbs are thoroughly massaged each day and the patient is sitting up in bed and out in a chair on the third or fourth day. Getting them up early helps them mentally as well as physically. They do not lose their strength, they get over their soreness sooner and they sleep better at night. Following the removal of the Hagner bag and the large Marion tube we put in a drainage tube size 30 F and the abdominal wall is strapped tightly around it. If we keep the wound dry, there is little chance of infection. I change to a smaller tube every few days until the wound is tight around a size 16 F. At this time the abdomen is strapped only as an indwelling catheter is put in for a few days. I was much interested in Dr. Crowell's report. I have felt that it was very difficult to estimate how much reserve strength these patients with malignancy have. Frequently, we see patients in whom the growth is so far advanced that they are inoperable. Because of their frequency of urination and pain, a suprapubic drain is inserted for temporary relief. Many of them live but a few weeks, demonstrating how little reserve strength they have.

VINCENT'S ANGINA INFECTION

ITS PREVALENCE, MANIFESTATIONS, BACTERIOLOGY AND TREATMENT: REPORT OF FIFTY-SIX CASES

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Vincent's angina, first described by Professor Vincent in 1898, is important because it is very likely to be mistaken for diphtheria. There was considerable frequency of this infection among the allied troops serving in France, and it was likewise seen to a varying degree in the camps in this country and in civilian practice. There are no statistics that would show the extent of the prevalence of the disease in this country, as it is not made reportable by the health departments. Unless this is done and a careful bacteriologic examination of the diseased mouths and throats is made, nothing exact can be known. It seems that under military conditions, the incidence was greatly increased.

Oral sepsis plays a very important part, as many patients showed decayed teeth and a high percentage of want of oral cleanliness. Frequently the mouth toilet is discarded on account of the pain and bleeding excited. General debilitating conditions, such as fatigue, chills, insufficient or improper food, excessive alcoholic consumption, excessive use of candy, excessive smoking or chewing, or the presence of debilitating diseases, markedly influence the instance of the infection of Vincent's angina, and locally acting influences are likewise important.

Frequently the organism of Vincent's angina has been found in smears taken from the inside of the mouth-pieces of pipes and cigaret holders. However, the foregoing explains the occurrence of the infection in only a certain percentage of the cases. All the cases reported in this paper were among soldiers.

SEASONAL VARIATIONS

J. D. Rolleston published a paper on thirty-two cases of Vincent's angina observed in children, and found the disease commonest in spring and rarest in autumn. From the reports of cases observed at the Queen Alexandria Military Hospital, during the year 1916, the condition was commonest during the winter months. The accompanying chart shows the incidence of Vincent's angina, according to months, observed at the base hospital, Camp Devens, from April, 1918, to July, 1919. It will be observed that the number began to increase in August, rose slowly to September,

remaining stationary to December, with a rapid rise in February, and a decline to below that observed in the previous September. The curve does not reach the zero mark as was observed in July, 1918.

EXCITING CAUSES

Since the discovery of the cause of this disease, there has been considerable discussion as to whether the specific organism, the fusiform bacillus and the accompanying spirochete or spirillum were two distinct organisms, living in symbiosis, or simply one, the fusiform bacillus, the spirochete or spirillum being merely evolutionary forms of the former, but always present with the bacillus. The latter (single organism theory) seems to have been definitely proved by Tunnicliff, Wright and others.

Tunnicliff isolated organisms from cases of Vincent's angina on slants of ascites agar (1:3); those from cases of gingivitis and noma on blood agar. The material was smeared on series of slants. Usually in the second tube the colonies of fusiform bacilli could be found after three or four days' incubation at 37 C.

Cultures were grown anaerobically, according to the method of Wright, by saturating cotton stoppers with a strong solution of sodium hydroxid, and closing the tubes with closely fitting corks and sealing them with paraffin. Subcultures were made from single colonies. The colonies are delicate and whitish and resemble colonies of streptococci, but are rather smoother and softer, especially when grown on blood agar. When colonies are quite isolated, they sometimes obtain considerable size (0.3 cm. diameter). The organisms show no progressive but considerable vibratory motion, spirilla retaining their spiral form. They grow on ascites agar, Loeffler's blood serum, blood agar (dog, sheep, goat, rabbit and human), and horse and human serum agar. Best spirilla are most frequently found in medium of agar 5 c.c. and twelve drops of equal parts of goat's or sheep's blood and 2 per cent. sodium citrate solution in physiologic sodium chlorid solution. An offensive odor is given off in all successful cultures. As the organism dies out rapidly, it is necessary to transplant large numbers of organisms to obtain successful cultures. The organisms are extremely polymorphous. During the first twenty-four hours' growth they are usually delicate, pointed rods, from 3 to 10 microns in length, straight or slightly bent. Spores are often seen during the first days of growth. Filaments of various lengths may appear in from twenty-four to forty-eight hours, or later. When filaments are present they can often be seen to be made up of strings of bacilli. They frequently contain deeply staining bodies, sometimes round, more often like bands. Vacuoles are sometimes seen in the filaments. Occasionally on the first day of the growth, but usually a few days later, spirals with from one to twenty curves are observed, sometimes in large numbers. As a rule they stain uniformly, but often it can be seen that they too are made up of rods. Spirilla sometimes contain vacuoles similar to those seen in smears made from tissues of Vincent's angina and noma. Sometimes for several generations only fusiform bacilli will be found in cultures; but, on changing the medium, filaments and spirilla will again be formed. Organisms stain best with heated 1 per cent. solution of alcoholic gentian in 5 per cent. phenol (carbolic acid) solution. Spirilla appear thicker when so stained than spirilla seen in smears from lesions that have first been fixed with heat and then stained; however, when such specimens are stained deeply by the foregoing method, spirilla often appear just as thick as that artificially cultivated. Spirilla may also be seen to good advantage in India ink preparations. Organisms do not stain by Gram's method. Animal experiments have been unsuccessful; the animals used were the dog, guinea-pig, rabbit, white rat and pigeon. Sterile animal tissues from the dog and the guinea-pig were also inoculated but with no growth of organisms.

Tunnicliff's conclusions were that strains of fusiform bacilli isolated in pure culture from the normal mouth, ulceromembranous angina and gingivitis and noma appear culturally and morphologically the same organism. Cultures show that bacilli and spirilla are different forms of one organism. Whether spirilla formed from fusiform bacilli are the same as those found in lesions themelves cannot be decided because of inability to reproduce lesions in lower animals.

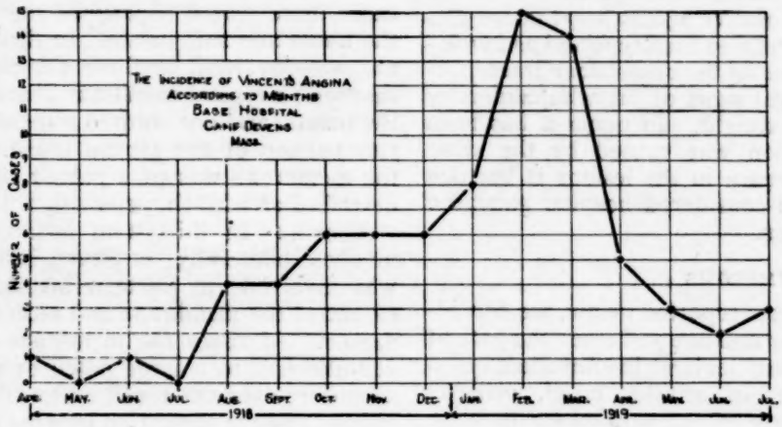
THE INCIDENCE OF VINCENT'S ANGINA ACCORDING TO MONTHS BASE HOSPITAL CAMP DEVENS MASS.
NUMBER OF CASES
APR. MAY. JUN. JUL. AUG. SEPT. OCT. NOV. DEC. JAN. FEB. MAR. APR. MAY. JUN. JUL.
1918
1919

Fig. 1.—Incidence of Vincent's angina at Camp Devens.

As already shown, the predisposing causes are: (1) insanitary conditions of the mouth; (2) gingivitis, recession of the gums, pyorrhea and decayed teeth; (3) diminished resistance due to poor food, lack of fresh air and rest, overcrowding and filth; (4) infections; and (5) fusiform bacilli, which have been found in smears taken from inside the mouth-pieces and holders of pipes, cigarets, gas masks, and other articles coming in contact with the mouth.

EXPERIMENTAL LABORATORY WORK

Smears were taken under the direction of the author from the mouths of fifty normal individuals with one positive result for spirilla and fusiform bacilli. Twenty-five smears from the teeth of normal individuals were examined and four were found positive for fusiform bacilli and spirilla resembling Vincent's organism. Smears from diseased teeth which were taken in the dental clinic resulted in 90 per cent. showing the foregoing organism. A guinea-pig was inoculated with 1 c.c. of a suspension containing spirilla and fusiform bacilli from a definite case of Vincent's angina with an absolutely negative result. All our attempts to grow the organisms anaerobically, using Wright's method, were negative. Blood agar and nutrient broth were used as mediums.

LOCATIONS AND APPEARANCE OF LESIONS

The typical lesion consists of a heavy, dirty looking membrane covering one or both of the tonsils, although it will make its appearance any place on the nasopharyngeal or buccal mucous membrane. It may even extend as a single membrane over most of the surface of the upper respiratory tract, as was reported by Horace Greeley. If the membrane is upon the tonsil, it commonly either shows a crater-like and excavated center or is so necrotic that slight pressure, as with the end of a covered probe, breaks through and the probe will sink for a variable distance. The ulcerations of the disease often cause considerable destruction of tissue and consequent scarring. Sometimes one will find a tendency to a chronic moderate tonsillitis or gingivitis with an occasional severe attack and typical lesions. Spillman reported a case of gangrene of the vulva and perineum caused by this infection. Noguchi has reported a case of ulcer of the labia due to it. Vincent himself reported several cases of gastro-enteritis, in which postmortem examination revealed large numbers of typical organisms in the intestine. Corbus and Harris have described ulcerative balanitis due to this organism, and they called it the "fourth venereal disease." In this the infection is mistaken for chancroid, but the finding of the causative agents helps in the differential diagnosis. It has also been reported as involving the mucous membrane of the respiratory tract, producing cough and physical signs of bronchopulmonary congestion with loss of weight. In noma it has been shown that this condition was caused by the same organism, and the difference in the lesions is but one of degree. Vincent has considered hospital gangrene as a form of this infection.

SYMPTOMS

In the study of the cases reported below, we considered the nationality, color and age; whether the patient was in domestic or overseas service; the duration, question of contact, number of attacks, onset, malaise, headache, backache, degree of the pain on swallowing, temperature, pulse, respiration, enlarged and tender cervical lymphatic glands, and the condition of the teeth, gums, buccal membrane, palate and pharynx. Likewise a Wassermann test was performed in each case as well as a throat culture and a stained smear and a dark field study. The breath and habits of the patient were also noted.

Nationality and Service: In a series of fifty-six cases, fifty-one of the patients were American, one German, one Canadian, one Italian and two Swedes. Fifty-two were white and four black. The average age was 24½ years. Thirty-six were in domestic service, nineteen overseas and one German prisoner.

Contact: Eight of the fifty-six patients gave evidence of being in contact with others who had similar symptoms; forty-eight were negative. Fifty-one gave a history of having but one attack, two had two attacks, one, three recurrent attacks, and two, one recurrent attack.

Onset: Forty-one gave a history of sudden onset.

Malaise: Thirty-six complained of malaise of varying degree, while eighteen were negative for malaise.

Headache: Thirty-three had headache of varying degree, five severe, and eighteen were negative for headache.

Backache: Seventeen had backache of varying intensity, two severe, four moderate, and thirty-two negative.

Pain on Swallowing: Eighteen complained of slight degree of pain on swallowing, eight moderately bad, twenty-six had severe pain, and four were negative.

Enlarged Tender Cervical Lymphatic Glands: Thirty-nine patients complained of enlarged and tender cervical lymphatic glands. Nine were on the right, seven on the left, twenty-three bilateral, and seventeen negative.

Objective Symptoms.—Teeth: Five with very bad teeth were found. In two cases the teeth were classified as poor, fifteen moderately poor, eleven slightly decayed, and twenty-three good.

Gums: Sixteen had congested gums; ten, ulceration of varying degree; there were eight with bleeding gums, seven showing recession; one, painful; four, sordes, and twenty-five, negative.

Buccal Membrane: Forty-nine were negative. In three cases the buccal membrane showed bilateral involvement with a membrane and superficial ulceration. In two there was involvement of the right side, in one the left, and in one case the buccal membrane was spongy. In one the right buccal membrane was red and congested but with no membrane. There were no cases of noma (gangrene).

Palate: Forty-four cases were negative. In two cases there was a superficial membrane over part of the uvula and soft palate. In three cases the soft palate was involved, in three the uvula; there was one case with a typical membrane over the soft palate above the pillars, and one showed a membrane over the superior portion of the faucial tonsil. In three instances the membrane was of a patchy character and may be described as whitish, yellowish and a dirty pearly gray.

Tonsils: In thirty-two instances the tonsils were involved bilaterally; in eleven instances the left tonsil was involved; in thirteen instances the right. The extent of the membrane and ulceration was of varying degree. At times the membrane varied from a thin veil-like film to a large patch or extensive membrane spreading over the tonsil or tonsils onto the posterior pillars; and the ulceration in some instances was superficial and again deep, and frequently as much as two thirds of the tonsil was eaten away. At times it would begin on the one side and rapidly spread to the other. The tonsils were frequently very friable and easily penetrated. In other instances they were very swollen and enlarged, and occasionally peritonsillar abscesses developed.

Pharynx: In thirty-seven cases the pharynx was negative; in five there was bilateral involvement; in one there was a general extension over the pharyngeal walls; in three instances, on both sides of the pharynx; in three, the right side; in five, the left and in two the posterior portion of the pharynx.

Wassermann Reaction: In fifty-one cases the Wassermann reaction was negative; three were strongly positive (coincidental). In one instance in which the Wassermann reaction was positive, the infection was bilateral on the posterior pillars of the tonsils and over the pharynx; in another instance, bilaterally on both tonsils, the right one being the worse. In one instance, when positive, the infection covered both tonsils and the posterior pillar. A yellowish, patchy membrane was seen between the tonsil and the posterior pillar. The membrane over the right tonsil was of a thin, filmy character. In another instance the left tonsil was adherent to the posterior pillar and covered by a pearly membrane which extended over the posterior pillar to the uvula. On the right side the anterior and posterior

pillars had patches, and a thin veil-like film covered the right tonsil and up over the palate. In a third instance, the infection was unilateral, involving the left tonsil and consisting of an oval ulcer extending up on the posterior pillar, the membrane being adherent and yellowish.

From all these cases smears were taken and affirmed by dark field illumination with the finding of the typical Vincent's fusiform bacilli and spirochetes (differentiated from *Spirochaeta pallida*).

Urinary Analysis: In ten cases there was a very small trace of albumin; forty-six were negative. Specific gravity averaged 1.0225. The average white blood count was 8,475; the differential count: small and large lymphocytes, 23 per cent.; transitionals, 2; eosinophils, 2; neutrophils, 73 per cent.

Complications: The complications consisted of several cases of follicular tonsillitis; quinsy, five; influenza, one; chronic interstitial nephritis, one; nasopharyngitis, two; otitis media, one and one case with *Streptococcus hemolyticus* septicemia. One case was diagnosed as Vincent's angina, as the smear was positive but the throat culture was positive for Klebs-Loeffler bacilli. The infection started on the outer side of the uvula on the left, and extended to the hard palate like a fan. The membrane was of a dirty hemorrhagic appearance; but when it reached the hard palate, it became whitish. There was considerable loss of tissue and some deposits of membrane on the posterior pharynx. In another instance the throat culture was positive for diphtheria as well as having a positive smear for the Vincent organism. This patient had just convalesced from scarlet fever. Twelve cases developed acute follicular tonsillitis. Nine presented no complications. In another instance the case started with an acute quinsy attack, and the peritonsillar abscess was first noticed between the left tonsil and the posterior pillar.

Breath: In twenty-two instances the breath was quite fetid; in thirty-two, moderately so, and two were negative.

Habits: None gave a history of excessive use of alcohol; ten were moderate users; six were very moderate. Eighteen did not use tobacco in any form, eight used pipes, thirteen used cigarets, fourteen smoked cigars and cigarets, and one used chewing tobacco. Twenty-six gave a history of using candy and sweets to excess; twenty-two stated that they ate large quantities of protein food, such as meat.

Stained Smears: The smears of the fifty-six were positive for the fusiform bacillus and spirochete by the stained method and by the dark field method.

Throat Cultures: Fifty-four had negative throat cultures, while two were positive for diphtheria.

Temperature and Pulse: The average temperature during the course of the disease was from 99 to 100 F. The average pulse rate was 84.

Duration: The average number of days in the hospital for the fifty-six patients was ten and a half.

DIFFERENTIAL DIAGNOSIS

In the majority of cases the diagnosis can be made with reasonable care from the clinical appearance alone; but to be on the safe side, a direct smear should always be stained and examined. The presence of coexisting diphtheria and syphilis must never be lost sight of.

Syphilis.—Fusiform bacilli and spirochetes may be found in syphilitic ulcers, but the ulcer has not a clinical feature of the true Vincent's angina. The lymphatic glands are not enlarged and tender, and the Wassermann reaction of the blood will help settle the question.

Diphtheria.—In diphtheria we have a membranous formation, accompanied by: (1) severe constitutional symptoms; (2) affection of both sides of the throat (usually); (3) not much pain on swallowing; (4) relative absence of tenderness of the submaxillary lymphatic glands; (5) membrane difficult to remove; (6) albumin frequently present in the urine, and (7) Klebs-Loeffler bacillus present in culture.

Vincent's Angina.—The chief clinical features are: (1) slight constitutional disturbance; (2) temperature rarely over 100 F.; (3) pain on swallowing; (4) submaxillary lymphatic glands enlarged and tender; (5) disease often unilateral; (6) the membranous exudate usually easily removed, leaving a raw, bleeding surface; (7) urine rarely albuminous, and (8) presence of fusiform bacilli and spirochetes.

INTERESTING CASES

CASE 1.—A man, aged 22, with no evidence of contact, suddenly developed a sore throat and headache with a subsequent acute bilateral follicular tonsillitis. He suffered with malaise, headache and backache, and a slight degree of pain on swallowing. His temperature averaged from 98 to 104; the pulse, from 76 to 124. The whole chain of lymphatic glands in the left cervical region became enlarged and painful but nonsuppurative. The teeth were in good condition; there was no evidence of any trouble with the gums, buccal membrane or palate. On the left tonsil there was a very characteristic membrane with moderately deep ulceration characteristic of Vincent's angina. There was no involvement of the pharynx. The Wassermann test was negative. The urine showed a trace of albumin. The adenitis, referred to above, developed seven days after his admission to the hospital; and five days after the onset of the complication, he developed arthritis at the right and left elbow, and then in the left shoulder and jaw. The knees and ankles were painful but not swollen. Blood culture was positive for *Streptococcus hemolyticus*. The patient died two days after the onset of the arthritis, and a culture from the synovial fluid of the left shoulder and left elbow was positive for *Streptococcus hemolyticus* as well as the spleen and heart's blood. The white blood count averaged from 13,800 to 16,000; neutrophils, 74 per cent.; large mononuclears, 22; transitionals, 2; basophils, 2.

The Vincent's angina, of course, did not cause the septicemia; but it is illustrative as to how one organism can so reduce the resistance of a part as to establish a portal of entry for other organisms which under certain conditions become highly virulent, gaining direct admission into the blood stream.

CASE 2.—Another interesting example of this infection was in a case of chronic interstitial nephritis which presented low specific gravity of the urine (1.006); excessive nocturnal elimination of urine; presence of albumin and casts; systolic blood pressure, 160; diastolic, 120; functional test of the kidney by the phenolsulphonephthalein method, from 13 to 14 per cent. in two hours. Examination of the eyes revealed sclerosis of the retinal arteries and bilateral hemorrhages (old and new). Vincent's angina affected the left tonsil, eating away two thirds. It spread over both buccal membranes, the gums became badly ulcerated, and it pained him more severely than the throat. The onset was sudden and severe; the patient complained of malaise, headache, backache, and a very slight degree of pain on swallowing. The temperature was 99.4, the pulse from 60 to 100. There was very slight enlargement and tender lymphatics.

TREATMENT

It is of the greatest importance to have the teeth well attended to, as very frequently fusiform bacilli and spirochetes will remain in the cavity of a tooth and

cause a recurrence of the infection. The teeth should be cleansed daily and a mouth wash used at frequent intervals. Excessive use of tobacco should be avoided as well as other predisposing causes enumerated elsewhere.

The author desires to emphasize strongly the value of the use of arsphenamin locally in the form of a 10 per cent. solution in glycerin or, for practical purposes, 0.6 gm. of arsphenamin dissolved in 2 fluidrams of glycerin. It does not seem to disintegrate in this way, and if dissolved in sterile water or salt solution and neutralized with sodium hydroxid, the preparation will become useless in a short while after being prepared. The author believes also that it is better to mix all the powder with the glycerin at one time rather than to dissolve just enough for the particular application; there is no serious objection to this method. The parts to be treated should be thoroughly cleansed and dried, and then the arsphenamin solution applied by a small cotton swab and the material thoroughly rubbed into the lesions. It is surprising to see the good results by applying this treatment twice a day. The duration of the disease is shortened materially, and it seems also to lessen the pain associated, which is particularly prevalent when the gums are involved. It is also indicated in those cases in which the gums are primarily involved and there is infection about the teeth, such as pyorrhea, as the author has found that about 90 per cent. of such cases show fusiform bacilli and spirochetes resembling Vincent's organism.

The next substance that gave good results was 2 per cent. solution of chromic acid applied in the same manner or sprayed on with an atomizer. Some observers have used tincture of iodin, colloidal silver, flavine, and a mixture composed of vinum ipecacuanhae, one-half ounce, glycerin, 1 ounce and liquor arsenicalis, 1 ounce; *also powdered methylene blue;* but in the author's experience, none has given such good results as the solution of arsphenamin.

CONCLUSIONS

1. It seems to be definitely proved that the fusiform bacillis and the accompanying spirochete are one and the same, the latter being an evolutionary form of the former but always present with the bacillus.

2. The author believes that Vincent's angina is much more common than is at present realized, and that it is not recognized because of the failure to take a smear, and that furthermore it is frequently mistaken for diphtheria and syphilitic ulcers.

3. It is also probable that the considerable use of candy or proteins with the subsequent lack of oral cleanliness predisposes markedly to this infection; likewise, that poor teeth harbor the organism and that it will manifest itself in its characteristic lesions whenever a suitable opportunity is given. It seems to be more frequent during the winter months.

4. The use of arsphenamin dissolved in glycerin is strongly advised in the treatment of Vincent's angina and infections in which the fusiform bacilli and spirochetes resembling Vincent's organism are found.

220 Kelker Street.

Human Engineering.—To this new specialty, usually termed "Industrial Medicine," I prefer to give another name, one that more clearly defines the real scope and possibilities of what the work offers, the name of "Human Engineering," for it clearly covers fields usually thought to be far removed from that of medicine.—F. L. Rector: *Pub. Health Rep.*, Jan. 9, 1920.

THE ALKALI RESERVE IN EPIDEMIC INFLUENZA AND BRONCHOPNEUMONIA *

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During the recent epidemic of so-called influenza and bronchopneumonia, the relation between the clinical course, the prognosis and the alkali reserve of the blood was made the subject of investigation in the wards of the Cincinnati General Hospital. The results point to a definite alkali depletion as a clinical factor, and serve as a basis for a rational alkali therapy.

The "acidosis" of influenza has been recognized by Eli,[1] Davidson,[2] Madden[3] and others, on the basis of the course of the disease, and they recommend elimination and alkali therapy on this supposition. The actual cause of the commonly noted cyanosis in influenza is still problematic, and its possible relation to acidosis is of clinical importance. Harrop[4] noted that the oxygen content and oxygen unsaturation of the blood showed normal values in uncomplicated influenza cases or in the nonfatal cases of bronchopneumonia. Oxygen inhalations did not relieve the cyanosis, although the possibility of diminished oxygen-carrying power of the blood may have been a factor. This feature is significant when we consider that the reduction of alkali may be associated with diminished oxygen-carrying power of hemoglobin, Mathews[5] having noted that alkaline hemoglobin is a better oxygen-carrying agent.

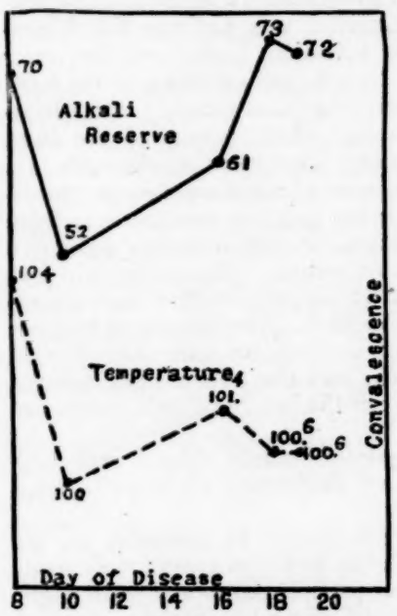

Chart 1.—Alkali reserve and temperature in Case 1.

The cases were of epidemic influenza and influenzal bronchopneumonia in the services of Drs. Mark Brown and H. B. Weiss, under the direction of Drs. R. J. Erickson and E. E. Bishop. There was no special selection, the patients (men) being studied as they came to the wards. In each case the blood for alkali

* From the Department of Medicine, University of Cincinnati, and the Cincinnati General Hospital.

1. Eli, T. C.: Alkali Treatment Applied to the Acidosis of Epidemic Influenza, New York M. J. **100**: 573 (April) 1919.
2. Davidson, Anstruther: Alkalis in the Treatment of Influenza, J. A. M. A. **71**: 1603 (Nov. 9) 1918.
3. Madden, L. S.: Influenza Treated by Sodium Bicarbonate Intravenously, J. M. Soc. New Jersey **16**: 160 (May) 1919.
4. Harrop, G. A., Jr.: Behavior of Blood Toward Oxygen in Influenzal Infections, Bull. Johns Hopkins Hosp. **30**: 10 (Jan.) 1919.
5. Mathews, A. P.: Physiological Chemistry, Ed. 1, New York, 1915, p. 494.

reserve was taken with a syringe from the median veins at the elbow, and transferred to a tube containing 5 drops of a 20 per cent. solution of potassium oxalate. The blood was taken at the same time during the morning in all cases, and the estimations were made within the same period of time. The method of Van Slyke [6] was used to determine the bicarbonate content of the blood plasma in terms of the percentage by volume of carbon dioxid. Where the blood sugar was determined, the method of Benedict [7] was followed.

Out of forty-six determinations in twenty-one patients, taken during different stages of influenza and bronchopneumonia, those whose alkali reserve dropped below 46, in spite of alkali therapy by mouth, died. The alkali given consisted of sodium citrate, 2 gm., and sodium bicarbonate, 2 gm., four times a day. Death took place in these cases from within a few hours to thirty-six hours. Patients showing an alkali reserve from 46 to 52, while receiving alkali therapy by mouth, had a doubtful prognosis, a fatal termination by bronchopneumonia being forecast by a drop in the alkali reserve, while a rise accompanied improvement. When death was due to meningitis, the alkali reserve was not always a significant clue, as was noted in two cases. A favorable prognosis was noted in cases having an alkali reserve of 53 or above, except in cases of complicating meningitis. Generally a drop in temperature with a drop in alkali reserve was associated with a poor condition clinically. A rise of temperature, associated with a rise in alkali reserve, often accompanied a more hopeful condition. A drop in tempera-

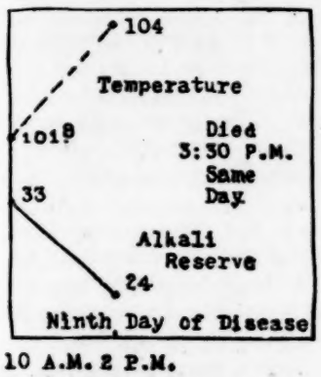

Chart 2. — Alkali reserve and temperature in Case 5.

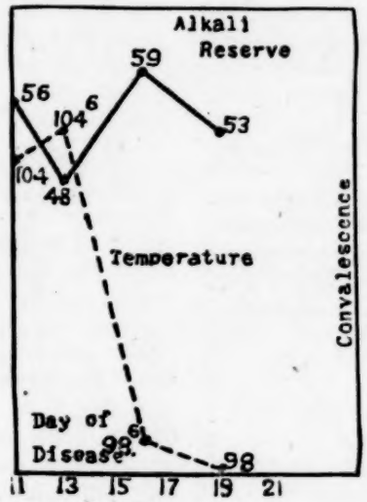

Chart 3.—Alkali reserve and temperature in Case 7.

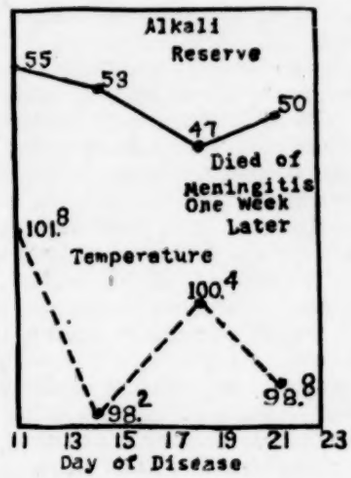

Chart 4. — Alkali reserve and temperature in Case 10.

6. Van Slyke, D. D.: Method of Determining Carbon Dioxide and Carbonates in Solution, J. Biol. Chem. **30**: 347 (June) 1917.
7. Meyers and Fine's modification of Lewis and Benedict's method for the determination of sugar in the blood.

FINDINGS IN TWENTY CASES

Case	Day of Disease	Temperature	Respirations	Alkali Reserve	Blood Sugar, per Cent.	Results	Comment
1 (E-1008)	8	104.0	22	70	0.10	Recovered	Bronchopneumonia; received alkalis intravenously; later developed empyema
	10	100.0	26	52	0.134	33 days	
	16	101.4	36	61			
	18	100.6	40	73			
	19	100.6	36	72			
2 (E-1195)	5	101.2	28	71	0.13	Recovered, 11 days	Disease was of short duration
3 (E-1072)	13	101.0	28	44	0.12	Died 15th day	Bronchopneumonia
4 (E-1338)	8	103.2	60	45	.....	Died 8th day	Delirious on admission; bronchopneumonia
5 (E-1477)	9	104.8	32	33	0.12	Died 11th day	Bronchopneumonia; comatose
	4 hours later	104.0	36	24			
6 (E-1489)	9	98.4	20	62	.....	Recovered, 30 days	Bronchopneumonia
7 (E-900)	11	104.0	24	56	0.124	Recovered, 47 days	Bronchopneumonia; developed mastoiditis
	13	104.6	36	48	0.124		
	16	98.6	24	59			
	19	98.0	28	53			
8 (E-1514)	4	101.6	36	56	.....	Recovered, 10 days	No complications
9 (E-1760)	2	102.0	24	55		Recovered, 15 days	Cyanotic; bronchopneumonia
10 (E-1305)	11	101.8	60	55	.....	Died 30th day	Bronchopneumonia; later developed meningitis
	14	98.2	58	53			
	18	100.4	60	47			
	21	98.8	40	50			
11 (E-1453)	6	103.6	40	46		Died 7th day	Cyanotic; bronchopneumonia
12 (E-1563)	18	102.4	26	48	.....	Died 20th day	Delirious, comatose (encephalitis); had bronchopneumonia
	19	100.4	34	57			
13 (E-1300)	15	99.2	28	55	.....	Recovered, 32 days	Bronchopneumonia
14 (E-1454)	15	100.6	28	68	.....	Recovered, 34 days	Had bronchopneumonia
	17	99.6	28	76			
15 (E-1485)	13	101.8	44	52	.....	Died 17th day	Cyanotic; bronchopneumonia
16 (E-1128)	?	99.8	22	50	.....	Recovered	Irrational on entrance; had bronchopneumonia
	3d day	101.6	22	46			
	5th day	98.8	22	58			
17 (E-1095)	16	98.0	20	62	.....	Recovered 31st day	Uncomplicated
18 (E-1567)	15	98.0	26	38	.....	Died 15th day	Bronchopneumonia; chronic alcoholic, under influence for five days previous
19 (E-1531)	5	98.8	30	60	.....	Recovered 12th day	Also had chronic bronchitis, asthma and chronic myocardial degeneration
	8	98.2	26	69			
20 (E-1537)	8	102.2	44	56	.....	Recovered	Cyanosis and dyspnea on entrance; developed double acute mastoiditis; uneventful recovery
	9	104.8	36	53			
	10	102.8	36	57			
	13	98.4	24	51			
	15	98.6	20	58			

ture, accompanied by a rise in the alkali reserve, marked convalescence. A rise in temperature with a drop in alkali reserve was of bad prognostic significance. The accompanying charts show these points.

The blood sugar remained fairly constant during wide ranges of alkali reserve and of temperature, even with approaching death. Case 7 of our series showed an alkali reserve of 56, with a blood sugar of 0.124. Two days later he showed an alkali reserve of 48, with the blood sugar 0.124. Case 1 showed an alkali reserve of 70, with a blood sugar of 0.10. Two days later the alkali reserve dropped to 52, while the blood sugar rose to 0.134. Alkali reserves in some of the other cases varying from 71 to 33 had blood sugars that were practically the same, ranging from 0.10 to 0.14.

Chart 1 illustrates another point relative to the efficacy of alkali therapy by mouth. There was a consistent drop in the alkali reserve in the beginning, in spite of 16 gm. of alkali a day, given by mouth. There was rapid improvement following intravenous medication. In Case 1 an intravenous injection of from 500 to 600 c.c. of Fischer's solution (sodium bicarbonate, 0.371 per cent.; sodium chlorid, 1.4 per cent.) was always accompanied by rapid improvement in the clinical condition, with quieting of the dyspnea. Evidently there is some process in the disease which causes a rapid depletion of the alkali reserve, and influenza can be considered, strictly speaking, as accompanied by "acidosis," the term being used to express a low alkali reserve. In one fatal case (Case 5) there was a drop in alkali reserve from 33 to 24 in about four hours.

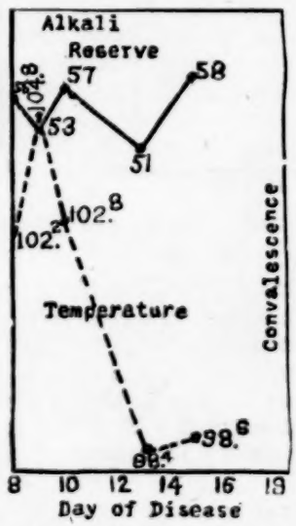

Chart 5.—Alkali reserve and temperature in Case 20.

There was no definite relation between the degree of cyanosis and the alkali reserve. There was a gradual decrease in the cyanosis as the alkali reserve increased, but this also accompanied improvement in the other symptoms. There was no immediate disappearance of the cyanosis after alkaline therapy intravenously. No definite relation was noted between the respiration rate and the alkali reserve.

It is appreciated that the series is not very extensive, but the similarity in the results suggests that the conclusions are justified. The series will be amplified as occasion permits.

SUMMARY AND CONCLUSIONS

1. So-called influenza and influenzal bronchopneumonia are accompanied by a depletion in the blood alkali reserve.

2. The depletion may be rapid or gradual, and is not much influenced by moderate doses of alkali by mouth.

3. The alkali reserve, when compared with the temperature, serves as a prognostic sign, and is a definite indication for the method of treatment.

4. An alkali reserve of 46 or below (in spite of moderate alkali therapy by mouth) was found in conditions in which the prognosis was bad; from 46 to 52 when the prognosis was doubtful, and 53 or above when the prognosis was good.

5. The alkali reserve does not give a clue as to the occurrence of complications.

6. The blood sugar is not markedly influenced by the variation in the clinical course of the disease.

7. There is no definite relation between the amount of cyanosis and the alkali reserve.

DEFINITIVE PERCUSSION AND INSPECTION IN ESTIMATING SIZE AND CONTOUR OF HEART

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Percussion of the thorax is employed to detect modifications of the sound over resonant parts, and also to define the area and contour of nonresonant bodies which lie within the thorax. The former may be called sonorous, the latter definitive percussion. Definitive percussion is, by all methods, the goal in view in percussion of the precordial area.

The modern innovation of the roentgen ray has lessened the significance of precordial percussion to such a degree that, in many teaching hospitals, percussion of the heart is done perfunctorily and inaccurately, because the roentgen-ray silhouette is respected as the only dependable guide. Many practicing physicians, because they have caught the spirit of this mental attitude on the part of the clinics, have neglected to learn the art of definitive percussion, and they either impose on their patients an unwarrantable expense for the use of a roentgen-ray appartus, or despair of defining the precordial area when such apparatus is not available.

HISTORY

Corvisart, Piorry, Skoda and Wintrich all proclaimed the importance of detecting resistance to the percussing fingers, and united in saying that "the finger that feels is quite as important as the ear that hears"; but in spite of such teaching, their writings fail to reveal accuracy of instruction in how to employ the aid of palpation in percussion. They all failed to differentiate clearly between the aims and methods of sonorous percussion and those of definitive percussion.

In view of the modest aims and the simplicity and directness of its methods, the very modern origin of the art of percussion is surprising. Auenbrugger published his "Inventum Novum" in 1763, but the invention was ignored and its author found no imitators among his contemporaries. Forty years later Corvisart translated Auenbrugger's work into French and added many observations to the original work. He said that during his student and hospital career he never saw a physician employ percussion. In reading the work of Auenbrugger and Corvisart, we wonder why the accuracy of their percussion did not keep pace with the gross pathology of their time. The instruction given by them was to percuss with the palmar surfaces of the extended and approximated fingers, and furthermore, the stroke should be gently applied. But Auenbrugger either percussed over the tightly drawn shirt of the patient or wore an unglazed glove to obviate a sound from the impact of bare hands on the patient's naked skin. This in itself is very significant for the vigor of the method.

The modern reader is perplexed to understand why the pioneers in percussion did not attain more accurate

results, until he comes to a Paris thesis by Chevalier, a pupil of Piorry (1833). The latter had introduced mediate percussion (1828), and had also criticized the direct method of Auenbrugger and Corvisart as "painful and dangerous to the patient," a statement which is surprising in view of the impression their writings give. Chevalier heads his dissertation with a motto that would serve equally well for a modern thesis on the same subject: Ceci tiens plus choses qu'on ne pense (This subject contains more things than one may think). Chevalier says, "Percussion, which everybody practices today, is so far from always giving what one should learn by it that the great majority of people who employ it only hear and do not touch. They neglect the most beautiful part of their method." In discussing the direct or immediate percussion as employed by Corvisart, Chevalier says: "The procedure has the great disadvantage of often producing painful sensations, and is always objectionable to the paitent." On page 11 of his thesis is found the highly illuminating statement: "Some of my comrades have at times been good enough to permit themselves to be percussed mediately by me, but they would never allow the direct method. The first stroke which I gave quite disgusted them with the method, although they employed their best will and I employed all the care of which I was capable."

Chevalier further criticizes Corvisart's method by saying that "direct percussion with the palm of the hand sets such a large area into vibration and is attended with such adventitious sounds from the impact of the hand that one can scarcely detect the character of tone elicited from the underlying organ. A moderate dulness of slight extent and also very pronounced but limited areas of dulness escape percussion with the flat of the hand."

From such criticism by the contemporaries and followers of Corvisart, it is quite clear why the immediate methods of Auenbrugger and Corvisart did not give more accurate results in definitive percussion. Apparently using the Auenbrugger method was much like etching a fine border with a blunt instrument.

But how did definitive percussion fare in the hands of Piorry and his followers who advocated mediate percussion? They were far more interested in sonorous percussion, as were Skoda, Wintrich and Williams, whose work was chiefly directed toward interpretation of the character of note which was emitted by the lung and tracheobronchial column of air in disease.

METHOD

The very criticism against the Auenbrugger method which we read in support of Piorry's mediate method is valid against the latter, namely, it is not definitive because too large an area of the thoracic wall is included in the plexímeter. To employ the mediate method properly, the plexímeter finger must be firmly fixed on the thoracic wall, and this fixation procedure will include a comparatively large thoracic wall area in the plexímeter, however light the percussion stroke may be. By this method the best results are obtained for sonorous percussion, but it defeats the purposes of definitive percussion, which are sought in outlining the area of precordial resistance.

There is no sharp boundary between the heart and surrounding lung. From the upper and left borders the lung encroaches over the precordial area as a wedge-shaped body. If the examiner is to define the border of the heart, he must employ the smallest possible plexímeter area and at the same time he must be able to penetrate the overlying lung to detect the resistant heart which lies beneath. Direct or immediate percussion best serves these purposes. The stroke should be made with the palmar surface of the terminal phalanx of the extended middle finger or ring finger. The blow should be made by firmly stroking the part as if the examiner were seeking to penetrate the underlying tongue of lung. One should not imitate the stroke of a piano hammer, which is made with a quick recoil to prevent damping of the string. The object of the firmly applied stroke is to damp the thoracic wall, and so far as possible eliminate it from sharing in the plexímeter.

Why should percussion be made with the finger extended? If the examiner is to employ his sense of resistance to detect the underlying heart, then the muscular sense through which the resistance is perceived is best served by maintaining the long flexor muscles of the fingers in an extended position. If the fingers are flexed and percussion done with the tips of the fingers, the muscular sense is partially sacrificed. It is like percussing, so to speak, with a frozen forearm. The sense of resistance is best served by holding the fingers extended with the muscles in what may be termed a fluctuant or mobile state. As the percussing finger arrives at the border of precordial projection along the intercostal spaces from the left, the examiner will feel an increase of resistance and hear an elevation in pitch and a shortened duration of the note. This suffices to mark the position of the left border. What may be the character of the percussion note over the precordial area is unimportant so far as the size of the heart is concerned.

In the performance of direct or touch percussion, the soft parts over the bony thorax should be smoothed out and drawn taut, because any lax tissues which may intervene between the chest wall and percussing finger will give a false result. Another important detail of the procedure is to have the patient in a sitting posture. In the lying position the heart very often recedes from the anterior thoracic wall, so that the demonstrable area of precordial dulness is much less than it is found to be in the erect position. It is not uncommon to find the area of dulness extend three fingers' breadths farther both to right and left when the patient assumes the sitting position.

The left cardiac border having been located from the third intercostal space downward, the examination is continued by locating the upper border of heart resistance in a line midway between the sternum and the nipple line. Beginning at the first intercostal space, with the finger held parallel with the ribs, the examiner percusses the intercostal and costal spaces successively downward, until he encounters the characteristic change in note and resistance which locates the upper cardiac border. In normal cases this may be anywhere from the second interspace to the top of the fourth rib.

THE RIGHT BORDER

Ability to locate the right border of the heart is a good test of skill in percussion. In textbooks on physical diagnosis, the right border is generally treated in a light manner which betrays the difficulties of the problem. When the left border is found in a normal position, the right border is inferentially located at the right sternal border; but if a normal heart is displaced in toto either to the right or to the left, or if the right ventricle and auricle are enlarged and the left side is not, then accurate percussion is demanded to locate

the right border. A sharply defined border cannot be located with a blunt device. For definitive percussion, the pleximeter must be reduced to a minimum area. If mediate percussion is employed, the pleximeter finger must be firmly applied to the thoracic wall, and the large sternum with its inserted ribs is unavoidably included in the pleximeter; consequently a broad pleximeter is used to define the border of an underlying resistant body, and when the percussion stroke is made, a considerable area of the neighboring lung is set in vibration. Futhermore, how can one estimate fine shades of resistance by the mediate method? Certainly they are not perceived by the pleximeter finger, for that is firmly applied to the chest wall—a procedure which eliminates employment of the muscular sense of the flexors of the pleximeter finger; and certainly not by the percussing finger, for the intervention of a pleximeter will dull its perception of intrathoracic resistance; moreover, the flexed position in which the percussing finger is held impairs the use of the muscular sense of its long flexors. The long flexor ceases to be a receptive instrument for afferent muscular impulses, and the flexed finger becomes a passive instrument attached to the hand. Every feature of this method is devised to defeat the perception of fine shades of resistance. In fact, it defeats both the sonorous and the definitive qualities of percussion as employed in finding borders of the heart.

The history of percussion of the right heart reveals an evasive treatment of the subject from Corvisart up to the publications of Ebstein of Göttingen. Corvisart said he could define the cardiac resistance under the lower half of the sternum, and he was credited by his pupils with being able to define with accuracy the size of the right and left sides of the heart; but his own writings fail to give satisfactory evidence to support this statement. After Piorry's publication, mediate percussion gradually displaced the direct, and virtually all subsequent contributions to the subject were based on the former, until Ebstein of Göttingen developed a technic of direct percussion of the precordial area, in which he employed both change of resistance and change in the audible note to define the cardiac borders. In his book (1907) he says that with the prevailing mediate percussion one cannot go far in defining the right cardiac border. My personal experience confirms Ebstein's statement. His method was known to me in my student days only through a brief statement by one of my greatly revered teachers, Prof. Friedrich Kraus, who at that time was a clinical assistant in Vienna (1890-1894). Kraus always employed mediate percussion, and seemed to attach little importance to the claims of Ebstein. In the toilsome progress of learning percussion, I developed a direct method of defining the right border of the heart, which has served me quite as well as Ebstein's method served him.

In Ebstein's method the fingers are held in extension and flexed at the metacarpophalangeal joint, and the stroke has more of a poking character and less flexibility than in the method I employ. However, this impression is derived purely from his writings, as I have never seen Ebstein or any of his pupils percuss. To define the right border, one should percuss in each intercostal space from the second to the fifth in succession, beginning at the midclavicular line and ending at the sternum. At the second interspace, the note and resistance are not changed in normal cases until the sternal border is reached, and then the change is slight. In the third, fourth and fifth interspaces, there are marked changes in both resistance and note as the percussing finger arrives at the sternal border. To confirm the retrosternal resistance and dulness from the right heart, the sternum is percussed from the manubrium downward, and in the descent along the right half of the sternum the note becomes less resonant and the resistance increases at the level of the third rib, or at the level at which the upper border may have been located to the left of the sternum. Should the heart in toto be displaced toward the left, the absence of the heart beneath one half or the whole breadth of the sternum can be demonstrated by the direct method. By the mediate method I have found it impossible to locate the heart under half of the breadth of the sternum, and in a great part of normal cases mediate percussion will not define the substernal resistance and dulness of the heart. Enlargement of precordial dulness to the right of the sternum is due to enlargement of the right auricle. The atrioventricular sulcus of the right heart virtually coincides with the right sternal border from the third to the sixth rib. Enlargement of the right ventricle does not move the base of the right ventricle to the right of the sternum, but is manifested by forward projection of the body and conus arteriosus of the right ventricle and extension toward the left.

When the right auricle is enlarged, there is a semilunar area of dulness to the right of the sternum, with its maximum extent in the fourth interspace and less in the third and fifth spaces. This should be confirmed by percussing downward from the third interspace to the fifth space in a longitudinal line which passes through the right border of auricular dulness in the fourth interspace. In this line the third and fifth interspaces will reveal more resonance and less resistance than is found in the fourth space. This procedure confirms the acute cardiohepatic angle of cardiac enlargement described by Dr. Roach of Boston in 1878.

THE INFERIOR BOUNDARY

Our discussion thus far has dealt only with the upper and lateral boundaries of the heart. The posterior aspect of the heart is inaccessible. The anterior aspect is accessible to inspection and palpation, but this phase of the subject is not included in the present thesis. Only the inferior aspect of the heart remains for discussion. Heretofore the only sign employed to recognize the downward enlargement of the heart has been hepatic displacement in a downward direction. This sign is demonstrable only in great enlargements of the heart. We can, however, detect flattening of the subcardial portion of the diaphragm in its entire extent, and we can also detect comparative flattening of the subcardial diaphragm to the right and to the left of the median line. The roentgen-ray silhouette gives evidence of this phenomenon only in very severe cases. Moderate flattening and comparative flattening of the right and left portions of the subcardial diaphragm are not demonstrable by this means. The sign referred to is due to alteration in the balance of control of the movement of the costal margins from the subcostal angle to the eighth costal cartilage on both sides. This phenomenon must not be confused with excursion of the diaphragm. It involves only activation of the diaphragm in its conflict with activation of the intercostal muscles for mastery of the costal margins. In normal human subjects the two margins in their entire extent move symmetrically outward. Should the entire

subcardial diaphragm be flattened, as occurs in globular enlargement of the heart from myocarditis and in many cases of mitral disease, the costal margins on both sides from the angle to the eighth ribs will move less in an outward direction than the lower and external part of the margins to which the lateral phrenic leaves are attached; and if there should be sufficient flattening, as occurs in many cases of cardiac enlargement, the costal margins from the angle to the eighth ribs will move symmetrically toward the median line with inspiration, whereas below and external to the eighth ribs the costal margins move outwardly. In the case of patients who enter the hospital with acute cardiectasis, it is a common experience to see the symmetrical inspiratory narrowing of the subcostal angle gradually replaced by inspiratory widening as the size of the heart diminishes and approximates the normal.

The inspiratory movement of the subcostal angle aids greatly in estimating the comparative parts played by the heart and by the lungs in many such patients, for many of them have bronchitis and emphysema with cardiac dilatation. When pulmonary emphysema is responsible for severe air hunger and dyspnea, the entire phrenic leaf on both sides is sufficiently flattened so that both costal margins in their entire extent are drawn toward the median line during inspiration.

When the heart and lungs are both factors in air hunger and dyspnea, this means of forming a conception of the contour of the diaphragm is important, because it gives the examiner very definite information about both cardiac and pulmonary enlargement. Such patients are commonly seen in a recumbent position in bed, which is not favorable for percussion of the heart. Accurate percussion of the heart can be done only with the patient in an upright position, whereas inspiratory movements of the costal margins can be studied only when the patient is lying down so that the abdominal muscles are relaxed. Consequently when such recumbent patients are examined, the size of the heart is often underestimated by percussion, but observations on the inspiratory movements of the costal angle betray the degree of cardiac dilatation. If the patient is placed in the sitting posture, percussion will reveal the true size of the heart.

The value of this sign in estimating the size of the heart was recently illustrated by a patient who had a malignant tumor of the thyroid gland and mediastinum and both lungs. The percussion borders of the heart extended on the left to the anterior axillary line, and on the right three quarters of the way to the right nipple line. The contour of precordial dulness was quite like that due to great enlargement of the two sides of the heart, and what added still further to the deception was a communication of the cardiac impulse to the surrounding growths, so that from inspection, percussion and palpation one would have been compelled to say that the heart was greatly and symmetrically enlarged. However, inspiratory widening of the subcostal angle was symmetrical and normal in extent. This could not occur in the presence of so large a heart unless there should be an increase of intra-abdominal pressure to prevent flattening of the diaphragm. Had it not been for this sign, which gave evidence of the conformation of the inferior aspect of the heart, an error in diagnosis could not have been avoided.

In observing patients with acute cardiac dilatation while under treatment, the movement of the costal borders is a very good guide to the progress of recovery. As the enlarged heart grows smaller, the costal margins will move less toward the median line during inspiration, and when both sides of the heart have made a good recovery, normal inspiratory widening of the subcostal angle will be resumed. If the patient has carried an old lesion that involved primarily the left ventricle, as occurs in lesions of the aortic valve and in arterial disease, then as recovery of the right heart progresses, the median half of the right costal border regains its outward movement with inspiration, but the median half of the left border may continue to move toward the median line during inspiration, or exhibit a lesser outward movement. How symmetry and asymmetry of movement at the subcostal angle very accurately mirror the contour of the subcardial diaphragm is also shown in cases in which the subcardial diaphragm is flattened only to the right of the median line. The following case is a very good illustration:

> At a casualty clearing station in Belgium, a wounded man, who also had severe phosgen poisoning, was suffering from severe pulmonary edema, dyspnea, air hunger and cyanosis. On account of severe pulmonary emphysema the heart's size could not be accurately determined by percussion with the patient in the recumbent position. Both costal borders in their entire extent moved symmetrically toward the median line during inspiration. Within a few minutes after the hypodermic administration of epinephrin (20 minims of a 1:1,000 soluton), it was observed that the entire left margin moved outwardly with inspiration; the lateral half of the right costal margin also moved laterally, but the inner half of the right border continued to move in a median direction during inspiration. This indicated bronchiolar spasm to have been a source of the acute lung emphysema. Percussion of the cardiac borders then revealed the right auricle midway between the sternum and the right nipple line. Forty-five minutes after $\frac{1}{25}$ grain of digitalin was given hypodermically, the entire right border moved symmetrically with the left border in an outward direction. Percussion then revealed the right border of precordial dulness at the right sternal border. By no other means would it have been possible under such conditions to acquire so clear a conception of the contour of the lateral and subcardial portions of the diaphragm in acute pulmonary emphysema and dilatation of the right ventricle and auricle.

The arch of the subcardial part of the diaphragm is very flat compared with the arch of its lateral portions, so that only a little depression of that part of the diaphragm is required to give it the mastery of the costal margins where its fibers are inserted. For this reason a differentiation between flattening of the subcardial and of the lateral parts of the diaphragm can be readily determined by observing the extent and direction in which the median and lateral halves of the costal margins move during inspiration. To make such observations the patient must be in a recumbent position, with abdominal muscles relaxed, and the movements of the costal borders should be studied during automatic respiration. If the patient is directed to bring respiration into the field of consciousness, as certainly follows if he is instructed to take a deep breath, he may voluntarily overactivate either intercostal muscles or diaphragm (as impelled by caprice), and thus give false information about the balance of control of the costal margins, which in human subjects is so nicely adjusted between the diaphragm and the intercostal muscles.

In the clinical teaching of Western Reserve University School of Medicine the movements of the costal margins are incorporated in the routine of physical

examination. The student is expected to account for any modification in movements of the costal borders as he should for a displaced apex impulse, and it is found that this procedure greatly improves his conception of the size and contour of the heart. This is the only method that enables the examiner to picture the contour of the inferior aspect of the heart—an attainment which is very important in making differential diagnoses between processes which involve the entire myocardium (or both chambers of the heart) and those which involve primarily either the left ventricle or the right side of the heart.

Lakeside Hospital.

THE RELATIVE USAGE OF NARCOTIC DRUGS IN HOSPITAL SERVICE AND PRIVATE PRACTICE

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This article is based on an elaborate statistical report rendered by the Bureau of Drug Control of Pennsylvania to the Commissioner of Health, and it deals with findings collected from the public hospitals of the state by experts in the field service of this bureau. The duplicates of the federal order blanks for opium, etc., were transcribed, or the clerk or pharmacist of the hospital rendered a report giving the totals for one year, in most instances the calendar year 1919, but in a few cases the fiscal year from July 1, 1919, to June 30, 1920. The number of ward and dispensary cases was that given in the report of the hospital for 1919, when such report was in print, or, when not published, that given by the superintendent of the hospital.

The result was a great volume of data from all over the state, and it was necessary to reduce this to some relative terms of comparison. Morphin, opium, etc., were purchased in a host of combination tablets, official preparations, special formulas and, as well, in the form of simple or uncombined drugs. All of these data were computed by Miss Nora C. Cantwell, secretary of the bureau, to the bases of opium, morphin, heroin, codein, cocain, etc., actually purchased by each hospital; and these totals for each hospital were, in turn, again computed to reach an opium basis for purposes of simple comparison, as regards opium and its educts, and to cocain as regards various solutions and tablets.

Finally, the totals on an opium and cocain basis were divided by the total numbers of ward and dispensary patients, for each hospital, and an annual per capita of opium and cocain determined. This made a fair basis of comparison easily understood. To give all of this material in detail would require much space, and in this article only certain totals will be given, and some inferences drawn.

The public hospitals of Philadelphia used in one year, estimating all alkaloids to an opium basis, 1.6 grains per capita for each patient treated, some patients being many months in the wards, and others visiting the dispensaries from one to many times. On the same basis, the public hospitals of Pittsburgh used a per capita of 2.9 grains of opium. The public hospitals of Allentown, Altoona, Erie, Harrisburg, Lancaster, Reading, Scranton, Wilkes-Barre and Williamsport—cities next in population to Philadelphia and Pittsburgh—used an annual per capita of 3.194 grains of opium. And the public hospitals of the smaller municipalities—Bellefonte, Berwick, Bradford, Chambersburg, Easton, Greensburg, Pottstown, Renova, Sayre, Uniontown and many others—used an annual per capita of 3.3 grains of opium, on an average estimate.

These figures tend to confirm statistics previously gathered and which show that the per capita usage of opium and its educts going through professional channels is smaller in the large cities of Pennsylvania than in the minor municipalities and the rural districts.

Striking an average for the public hospitals of the whole state, as based on the numbers of patients treated, the annual per capita of opium is so close to exactly 3 grains that this figure may be accepted as approximately correct.

The report of a committee appointed by the Secretary of the Treasury, as published from Washington in June, 1919, showed, as estimated on an opium basis and counting every man, woman and child—sick and well—in the Union, an annual per capita consumption of 36 grains of opium, with an additional unknown supply of smuggled-in opium to be added thereto.

A report rendered by the Bureau of Drug Control of Pennsylvania in August, 1919, estimated the parallel figures in that state as 34 grains; and a report that we are now preparing shows a drop within the last year of approximately 30 per cent., or about to 24 grains. It is worthy of comment that the per capita credited to the hospitals, where certainly there exists the greatest real need for opium and its educts, is *only one-eighth that of the state at large*, counting sick and well, young and old, normal and addicted persons.

The per capita usage of cocain, estimated on the same plan as opium, was: public hospitals in Philadelphia, 0.223 grain per year; Pittsburgh, 0.314 grain; other large municipalities, 0.26 grain; small municipalities, 0.154 grain. These figures are very low, owing partly to the fact that other local anesthetics are largely displacing cocain.

Heroin, apparently, is going out of hospital usage, as the total purchases were very small for all over the state, thirty-six public hospitals using no heroin whatever. The heavy purchases of heroin were nearly all made by hospitals in Philadelphia, with Lancaster and Reading hospitals using the bulk of the rest consumed. Only two homeopathic hospitals in the state purchased any heroin. There appears to be some feeling over the heroin proposition, as physicians in hospital service in smaller municipalities connect the general use of heroin in Philadelphia with the heavy mortality rate there during the influenza epidemic of 1918-1919. I have no data warranting an expression of opinion in this connection; but it is a fact that the hospitals of Philadelphia, Reading and Lancaster made 90 per cent. of the total purchases of heroin to be credited to the hospitals of the state.

The homeopathic hospitals of the state, grouped in a class by themselves, show an annual per capita of 0.445 grain of opium, as against 3 grains for the hospitals of the state at large. The lowest narcotic record in the state is held by the Woman's Southern Homeopathic Hospital of Philadelphia, which treated 790 ward cases, 1,176 dispensary cases, and used only 24 grains of opium and 16 grains of morphin in a year, according to our record. The heaviest record in the state, a per capita of 11¼ grains of opium per year, is held by a small hospital in Columbia County that does a great deal of emergency surgery. It must be remarked that

the character of work done by a hospital has much to do with setting its narcotic per capita. A hospital for miners, or one located near large railroad yards, has a vastly different proposition to face from that of a hospital for women in a residence section. The Homeopathic Hospital of Pittsburgh, doing considerable surgery, has an annual opium per capita of 1.5 grains. Probably the hardest narcotic situation met by any hospital in the state is that confronting the Philadelphia General Hospital, which treated 23,900 patients in the year, 3,624 of them being insane persons, and several hundred being drug addicts; yet its annual opium per capita was only 6 grains, which under the circumstances is very low.

It is the view of this bureau that the narcotic record of the public hospitals of Pennsylvania is most creditable, and that it is not wise to attempt to reduce the narcotic per capita in the case of most of them.

The several hospitals reporting no dispensary cases have an annual per capita average of 3.3 grains of opium, against the general average of 3 grains for all of the hospitals. A slight factor of error exists in the fact that some hospitals give dispensary patients prescriptions to be filled outside, but the prescriptions reported from drug stores as filled for hospital dispensary patients carry so little narcotic medication that the figures would be very slightly altered by incorporating them.

The more nearly a hospital approaches standardization, the lower is its narcotic per capita, and the fewer combination tablets and other unscientific narcotic preparations appear on its report. A few hospitals purchase proprietary narcotic preparations, such as Papine and H. M. C. tablets. Very few public hospitals treat drug addicts for the cure of the craving for drugs, and when they do treat them they take the patients entirely off the drug addiction within a few days.

In making a comparison of the relative usage of narcotics in hospital service and in private practice, it is difficult to secure exact figures in the latter field. This bureau aims to get complete reports of narcotic purchases and prescriptions, and we do get the bulk of these reports; but we realize that we miss many on account of various human factors. There is some concealment, more careless reporting, and a great deal of neglect; and, although these elements are followed up, the statistics collected in the field of private practice are only approximately correct. Few physicians keep clinical records to an extent that enables them to report the number of patients treated in a year, and we cannot demand such figures from them, nor do we know from morbidity reports how many persons are ill and injured in the state in one year.

There is one physician to about 700 people in Pennsylvania. Estimating on the hospital per capita of 3 grains of opium a year, the average physician with 700 patients, assuming that every one of them is ill at least once in the year, which is far from the fact, should use 2,100 grains of opium a year, figuring morphin, heroin, codein, etc., on an opium basis. This estimate covers, of course, dispensing and prescribing.

To offset the persons who do not get any medical attention in the year, it is necessary to bear in mind that physicians in private practice treat many incurables and chronic cases of painful disease requiring constant narcotic medication, that there are many postoperative cases, aged and infirm persons, and persons who refuse surgical attention, in the practices of physicians; and it must also be remembered that many country practitioners are denied the help of good nursing, see their chronic cases comparatively seldom, and are, by force of circumstances, required to use a higher narcotic per capita with these patients than they would use were these unfortunates in hospital beds. Things are far from ideal in general medical practice.

Statistics are collected fairly readily from the more capable and up-to-date physicians, and we find that at least 60 per cent. of the physicians in Pennsylvania are getting along on a per capita of 4 grains of opium (estimating all opium educts on an opium basis) for 700 persons in their practices—sick and well, chronic and incurable cases, postoperative and aged. This is not far from the hospital basis, fairly estimating all factors, and may be considered a fair and proper basis for the average physician of capacity. We consider it a creditable record.

Our recent figures, however, show a per capita, averaging the *whole* medical profession in the state, of at least 15 grains of opium a year for every person in the state. This is five times the hospital per capita and counting the year's drop of approximately 30 per cent. from the bureau report of August, 1919. These figures for the whole profession are most conservative, as the average per capita of opium going through legitimate and legal channels is 24 grains a year. This leaves a per capita of 9 grains a year to be accounted for by dentists, veterinarians, osteopaths, "patent medicines" and other exempt preparations, and wastage.

The inference is obvious that the less competent members of the medical profession must be credited with a per capita far in excess of that credited to the more competent physicians. Our records of individual purchases show that about 3,600 physicians run markedly above a per capita of 4 grains a year, as estimated on the basis set forth in this paper. Yet comparatively few physicians run over a per capita of 15 grains a year; certainly not more than 600 of them. About 250 have been using exceptionally large amounts, and these are the men catering to drug addiction or simply carrying addicts along on the discredited ambulatory reduction treatment. These 250 men are responsible for a grossly undue amount of narcotics that raises the whole average of the state to what it is. If they dropped out and none took their places, probably the per capita professional average in the state would be cut in half, at least, and still allow for many honorable and more or less incapable physicians to run a per capita of 10 to 15 grains.

This excess baggage in the narcotic field can easily be accounted for by a simple estimate. An addict to morphin will very commonly take 10 grains a day, or 3,650 grains in a year. Physicians often doubt whether any addict they personally know takes this much; they think they know that 4 grains a day is the limit, but they do *not* know, as this bureau does, that these very addicts are procuring supplies from two or more sources at the same time.

Pennsylvania Hospital, in Philadelphia, treated 17,726 patients, according to the report rendered, and used 2,458 grains of morphin in a year. The University Hospital treated 24,212 patients and used 1,248 grains of morphin. Hahnemann Hospital treated 20,742 patients and used 2,063 grains of morphin. West Penn Hospital, in Pittsburgh, treated 8,592 patients and used 2,890 grains of morphin. One addict using 10 grains a day consumes in a year more morphin than is used by any one of these large hospitals. The

average usage of these four large hospitals is 2,165 grains in a year. One addict taking 6 grains a day will use that much in a year.

Philadelphia General Hospital, inclusive of its department for the insane, uses about 20 ounces of morphin in a year, treating 23,900 patients. Five morphin addicts, each taking 6 grains a day, will use that much morphin in a year. Many physicians are carrying along, on the reductive ambulatory treatment, that many morphin addicts, and supplying them as much morphin as suffices for this large hospital. This is the sort of thing that runs up the professional per capita usage of morphin in Pennsylvania.

One heroin addict, a woman in Philadelphia under the care of a reputable physician, received on prescription 4,320 grains of heroin in 1919, and she took all of it. The combined usage of heroin in all of the public hospitals in Pennsylvania, excepting Philadelphia, Reading and Lancaster, was only about 3,000 grains.

Despite the fact that the public hospitals in Philadelphia use more heroin than do those in the state at large, the total usage in these Philadelphia hospitals is only slightly over 12,000 grains in a year. Yet there recently came to my desk a report on A. T., a white man, aged 28, an addict to heroin and cocain for eleven years, who procured in Philadelphia during the last year from various sources 6,570 grains of heroin (18 grains a day). That is more than half as much as all of the public hospitals in Philadelphia used in the year. Three heroin addicts in Philadelphia, of the many reported, consumed as much heroin in 1919 as did all of the public hospitals of the city combined. Needless to say, this bureau took these cases in hand and served notices on the physicians involved to cease such prescribing. These extreme instances are cited to show why the professional per capita is high, clearing the hospitals and the great majority of the physicians of all blame, but revealing a serious lack of knowledge, ethics and honor among a small minority of physicians who are a menace to the public health.

Sometimes there is a serious municipal problem to face, owing to careless or discredited physicians making drug addicts and maintaining the addiction of the old ones. The twenty-seven largest hospitals in Philadelphia, all combined, use about 90 ounces of morphin in a year; yet one town of 15,000 people in Pennsylvania, and having about fifty addicts carried along by three physicians, used about 200 ounces of morphin in a year for them alone, while the excellent hospital there, treating 1,651 patients in the same year, 1919, used less than 2 ounces of morphin, and the community at large used a rather low per capita. Yet this community has many estimable physicians, an active medical society and a good city government that deplores the fact that a few physicians have brought so much woe to the community.

RECOMMENDATIONS

This is a broad survey, as accurate as the nature of the problem faced has, thus far, made practicable. Permit a few recommendations.

1. There should be more and better rural hospitals.
2. Physicians whose training is defective should be aided to a higher standard of efficiency.
3. The importation and distribution of narcotic drugs for legitimate purposes should be, in my view, under the care of a government bureau; but no government should, through subsidies, etc., participate in the profits of the opium business.
4. Proper limits should be placed on the amounts imported and distributed to physicians, pharmacists, and the like, reducing the amounts through a series of years, finally reaching the actual basis of need.
5. Smuggling of narcotics should be made an offense punishable by imprisonment for not less than five years, never by a mere fine.
6. The internal revenue taxation of narcotics and dealing therein, as established in the United States, should be kept up as a necessity in tracing importations, distribution and usage.
7. Cannabis, hyoscyamus, hydrated chloral, and a few synthetic drugs should come under the narcotic-control laws, and no narcotic drugs whatsoever should be permitted in proprietary preparations and products sold without prescription. Exemptions lead to abuses.
8. Drug peddling in every shape and form should be sternly met with heavy jail sentences, never by the imposition of a mere fine.
9. The so-called ambulatory reduction treatment of drug addiction is rarely of any value and should not be permitted under the laws designed to control addiction; but the drug addicts should, in some way be hospitalized or humanely taken care of in proper institutions.

APLASTIC ANEMIA AND RELATED CONDITIONS

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Aplastic anemia is fortunately a rare disease. It has, however, two significant aspects. In the first place, it is theoretically important because an appreciation of it helps to an understanding of other anemias. In the second place, it has practical importance as the type of a group of diseases which, taken as a whole, are by no means infrequent. Moreover, they possess a peculiar urgency, for diseases of this class cause most of the so-called uncontrollable hemorrhages.

It is important to understand the theoretical relationship of aplastic anemia to other diseases of the anemic group. Anemia means decrease in the total amount of hemoglobin contained in the circulating red corpuscles. It is usually associated with a numerical decrease in the red cells themselves.

At a given moment the state of the blood as regards hemoglobin and red corpuscles is the resultant of two opposed forces—that of production balanced against that of destruction or loss. Every individual is constantly losing red cells by minor hemorrhages from the skin and mucous membranes, and a still greater loss is going on constantly through destruction inside the body. The best evidence of this is the constant flow of bile pigment, a derivative of hemoglobin. So rapid is this destruction that the red cell has been found to have a life of only a few weeks. This constant loss must be compensated by an equally constant formation of new corpuscles, The production of red corpuscles is a function of the bone marrow. The normal marrow of the adult consists mostly of fat, this portion being inactive. There are, however, in the flat bones, the bodies of the vertebrae and the ends of some of the long bones, depôts of red marrow, and it is here that the production of red corpuscles is constantly taking place.

Most of our ordinary benign anemias are primarily due to increased destruction or loss of blood. In consequence of this the yellow marrow changes to red marrow more or less completely, and along with this increase of active marrow, there is an increase in the formation of blood cells. In benign and ordinary secondary anemias this increased productivity is sufficient so that when the cause is removed, it sooner or later restores normal conditions. In pernicious anemia we have the same intense hyperplasia of the marrow, and the patient dies, not because blood production fails, but because the destructive process is so intense and continuous that production fails to catch up. I do not mean to say that the marrow in pernicious anemia is like normal red marrow. It is far from normal and it produces cells that are far from normal; nevertheless, the element of overproduction is present during the greater part of the disease and in the greater number of cases.

In aplastic anemia this compensatory overproduction fails to take place. This is the very essence of the disease—failure on the part of the marrow to produce even the normal number of red corpuscles. Instead of the yellow marrow becoming red, the entire marrow becomes yellow or gelatinous or otherwise modified and functionless.

The view has often been expressed that aplastic anemia is merely pernicious anemia without regenerative changes in the marrow. We do not hear this so frequently of late, and certainly there seem to be radical reasons for rejecting it, at least in the majority of cases. Pernicious anemia is the result primarily of increased blood destruction, and it is perfectly possible to demonstrate by a quantitative study of the bile pigments eliminated that this increased destruction takes place. Similar studies in aplastic anemia usually show no evidence of increased blood destruction. To be sure, pernicious anemia may end in a terminal phase of aplasia, but we may say that the great majority of cases of aplastic anemia have nothing whatsoever to do with the pernicious form.

There is much more reason for believing that aplastic anemia may result from some of the factors usually causing ordinary secondary anemia. In other words, hemorrhage or severe sepsis may result in exhaustion of the marrow; they hit the marrow so hard that it is no longer able to work, and aplasia supervenes. It must be remembered, however, that hemorrhage is a prominent and often an early symptom of aplastic anemia, and one must not put the cart before the horse. Still, there are cases in which there seems to be little doubt of the causative relationship of hemorrhage.

Poisons like benzene (benzol, C_6H_6) and some of the substances used in the production of higher explosives unquestionably may produce, both clinically and experimentally, an anemia that is at least closely allied to the form we are studying. In leukemia again we often find, mixed up with the changes in leukocytes, numerical and morphologic alterations in the red corpuscles and platelets similar to what is seen in aplastic anemia. In these cases it is probable that the normal marrow has been displaced by the overgrowth of the tumor-like leukemic tissue. Ordinarily the picture is clear enough, as it is so completely dominated by the changes due directly to the leukemia; but in aleukemic phases of the disease, in which the characteristic hyperleukocytosis is absent, the diagnosis may be difficult or impossible.

After we have subtracted all these secondary forms of aplastic anemia, there still remains a large residue to which the word idiopathic must for the present be given. The marrow from some unknown cause stops work and the patient becomes anemic from the ordinary normal processes of blood destruction.

The most striking clinical feature of the disease is, of course, the anemia. It is usually extreme in degree from an early stage and it progresses with great rapidity, as might be expected of a disease in which the blood-forming organs are so profoundly altered. The next most important symptom is the tendency to bleed. Hemorrhage from the mucous membranes of the nose and throat and rectum is common, and subcutaneous hemorrhages are present in almost every case. I have seen the disease associated with what appeared to be noma. Whether the noma was primary and the aplasia due to marrow injury from the toxemia, or whether the anemia was primary and the noma resulted from disturbance of antibacterial functions, I do not know.

The blood picture is clear and definite. So far I have spoken only of the red cells and of the marrow deficiency in respect to their production; but the production of red cells is not the only function of the marrow. In addition, this tissue produces platelets and certain of the leukocytes. In aplastic anemia the marrow is depressed in all its functions, and all three must be taken into consideration. As regards the red cells, I have said that they are reduced and that the anemia advances rapidly. The hemoglobin is, of course, also decreased, and it is decreased in about the same proportion so that the color index does not vary far from 1. The tendency is to a slightly low index. Qualitative changes in the red cells, as seen in stained smears, are unexpectedly slight, considering the severity of the anemia. Nucleated reds are usually absent. Abnormalities in color, size and shape are also slight. The reticulated cells, presumably young forms, are usually decidedly below normal. These changes are what one would expect in anemia due simply to cessation of blood production. New cells, normal or abnormal, are not produced. Those that remain are about what they were in the first place. To be sure, in some cases small numbers of blasts and other abnormal reds may appear, probably owing to the fact that a few islands of active marrow remain. They are like the few men who remain in a factory when all the others are on strike. They labor valiantly, but turn out a product which is incomplete and abnormal. In my opinion, the presence of these few changed forms is not to be considered as evidence that the case was originally pernicious anemia.

The white corpuscles are, as might be expected, numerically decreased. Smears show that the deficiency does not involve the large mononuclears (endothelial leukocytes) or the lymphocytes, but that it is confined to the polymorphonuclear neutrophils, eosinophils and mast cells. The reason for this is obvious. The decrease involves only such cells as are produced in the marrow. Lymphocytes and large mononuclears are produced elsewhere. Therefore they are not involved. The degree of decrease in the polymorphonuclears is very striking. Normally their absolute number is in the vicinity of from 3,000 to 6,000 per cubic millimeter. In aplastic anemia they are counted rather by hundreds, and I have seen cases in which it was necessary to make a half hour's hunt before a single one could be discovered.

The platelets are also decreased. Their average number in the normal individual is about 300,000. In this disease they may be reduced to a few thousand. The reduction is obvious at a glance at a well-stained smear.

The hemorrhages are explained mainly by the decrease in platelets, but there is also a decrease in prothrombin, perhaps itself a derivative of platelets. Coagulation time is prolonged. The clot, when it forms, does not retract. Bleeding time, that is to say, the duration of hemorrhage from a small cut, normally one or two minutes, is greatly increased. Both the increased bleeding time and the nonretractile clot are inevitable results of marked decrease in the platelets.

The prognosis in aplastic anemia is bad. Most patients die in a few weeks. Remissions, as a rule, do not occur. I have reported one case in which a perfectly clean-cut remission did take place, and one or two similar instances have appeared in the literature since. Repeated transfusions undoubtedly prolong the duration of the disease, but there is no evidence that they modify the ultimate result.

Aplastic anemia is to be regarded as the most marked form of deficiency of the marrow, involving all three of its functions. But there are forms of partial failure, the most important of which is purpura hemorrhagica (Werlhoff's disease). Of all conditions that cause uncontrollable hemorrhage, purpura hemorrhagica is probably the most common. Its importance to the internist is obvious, and it is equally obvious that it is important to the surgeon and more particularly to those who operate on the nose and throat. It is probably a form of aplasia involving only the platelet-producing function of the marrow. The platelets are greatly decreased, as is evident on counting or on a mere inspection of the blood smear. I say it is *probably* due to marrow deficiency. At least it is today almost uniformly considered to be of this nature. Lee and Robertson have, however, produced a similar condition experimentally by injections of antiplatelet serum. Apparently it makes no difference how the blood is deprived of its platelets. If they are not there, purpura hemorrhagica results.

In consequence of lack of platelets, certain definite symptoms of impaired coagulation result, namely, prolonged bleeding time and nonretractile clotting. There is no change in the coagulation time.

The red corpuscles in purpura hemorrhagica are usually decreased, as one might expect in a disease characterized by excessive bleeding. Here, however, the anemia is a consequence of bleeding and, so far as red corpuscles are concerned, the marrow reacts normally and we have instead of aplasia every evidence of overproduction of red cells. Blasts, abnormalities in size, shape and color, increase in reticulated cells, and all the other changes that go with an ordinary posthemorrhagic anemia may be found. The white corpuscles, too, are normal. Indeed, there may be an increase of polymorphonuclear neutrophils such as is so often seen in young persons after hemorrhage. In other words, there is no aplasia either of the red or white cell-producing functions of the marrow.

It will be seen that in purpura hemorrhagica we have a remarkable dissociation of the functions of the marrow, only one of them—that of producing platelets—being affected. Such definite and clean-cut aplasia of the erythrogenic or leukogenic tissues alone, if it occurs at all, is extremely rare. Türk, in 1907, described a case of sepsis in which the polymorphonuclear leukocytes almost wholly disappeared, the red cells remaining normal. Naturally, at that date little was said of the platelets. In benzene poisoning the effect on the leukocytes is earlier and decidedly more marked than on the reds or platelets. The anatomic relationship of the marrow cells having to do with the three functions is so close that, except for the platelets, one is rarely much affected without involving the others.

Mixed and intermediate cases are more frequently seen. Minot has reported cases of purpura hemorhagica with chronic anemia of a sort suggesting deficient marrow function. I have recently had two somewhat similar cases under my care. In one a diagnosis of aplastic anemia was made five years ago. The patient was referred to me by an ophthalmologist because of hemorrhages into the vitreous. It was undoubtedly purpura hemorrhagica, but in addition to great decrease in platelets, there was an anemia far beyond what the hemorrhages would account for. There was a leukopenia involving principally the polymorphonuclear neutrophils, and the reticulated red cells were low. Obviously this was hemorrhagic purpura plus insufficiencies of the other marrow functions, though, of course, the marrow was hypoplastic rather than aplastic. Perhaps the expression "hypoplastic anemia" would cover the whole picture.

Various combinations of marrow inefficiency may occur, so that we must individualize and study each patient on his own merits. If this is done, it is usually easy to understand and classify the case, but it is often impossible to assign to it the name of a recognized disease.

The treatment of this group of diseases practically narrows itself down to transfusion—about the only thing that will do the least bit of good. Transfusion replaces red cells, and lessens for a time the degree of anemia. It stops hemorrhages by replacing the platelets. Its effect on both of these elements will be about as durable as the elements themselves, that is, the effect on the red cells will last about a month, but the effect on the platelets will last only a few days.

Does it ever give more lasting benefit? Will the marrow under its influence sometimes resume its function? Unfortunately, in aplastic anemia, the answer must be "No." I recently had under my care at the City Hospital a little girl on whom we made nine transfusions. The first ones gave surprisingly long periods of freedom from hemorrhage. Then we were tempted to be hopeful. Toward the end, however, transfusions seemed to have not the slightest effect even in temporarily controlling the bleeding. One might expect better results in cases in which aplasia has followed acutely after a single hemorrhage, or in such cases as those due to benzene poisoning, as the cause is not continuous. If one could tide over the immediate emergency, possibly the marrow might ultimately resume its functions; but there is not evidence sufficient to warrant the statement that this will in fact occur.

In hemorrhagic purpura the condition is somewhat more hopeful. The aplasia is partial and the cases are more frequently chronic. They tend to occur paroxysmally. If platelets are supplied through a generous transfusion, the hemorrhages can almost invariably be stopped for a few days. If we can tide the patient over these days, the immediate emergency may be relieved, and a certain number of them will probably recover. I have seen at least one case in which early recurrences required transfusion. The attacks became less severe and less frequent, and when last heard from the man had been nearly a year without one.

912 Beacon Street.

ACUTE APPENDICITIS

A REVIEW OF FIVE HUNDRED AND EIGHTY-FOUR CONSECUTIVE CASES *

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This paper is an analytic study of the mortality and complications of 584 consecutive cases of acute appendicitis, with special reference to the late results of 500 cases in which the patients were followed from three months to four years after leaving the hospital. The main purpose in publishing these results is to emphasize the importance of early operation in decreasing mortality, complications and unfavorable sequelae. The number of late cases received by us, as shown by the fact that 206 (35 per cent) of the patients had either developed localized abscess or diffuse spreading peritonitis before admission, justifies this renewed plea for early operation.

TABLE 1.—MOST IMPORTANT COMPLICATIONS AND SEQUELAE

	Nondrained Cases		Drained Cases	
	No.	Per Cent.	No.	Per Cent.
Secondary abdominal abscess	4	1.6	21	6.2
Postoperative hernias	4	1.9	49	15.0
Average days in hospital	10		19	

The total mortality of the series of 584 cases is twenty-five, or 4.2 per cent. The analysis shows strikingly the much lower mortality in the early cases, which can be closed without drainage, over the late cases that must be drained. Two hundred and forty cases were closed without drainage; in these there were two deaths, a mortality of 0.83 per cent.; there were 344 drained cases with twenty-three deaths, a mortality of 6.8 per cent. A study of the most important complications and sequelae reveals similar findings (Table 1).

TABLE 2.—MORTALITY BY DECADES

Age	Cases	Deaths	Mortality Per Cent.
From 0 to 10	65	7	10.9
From 11 to 20	201	5	2.4
From 21 to 30	182	2	1.1
From 31 to 40	83	7	8.5
From 41 to 50	43	1	2.3
From 51 to 60	6	2	33.3
From 61 to 70	4	1	25.0

All patients have been operated on by the members of the staff of the Second Surgical Division, and, as a rule, a definite routine has been followed. The McBurney incision is used in the majority of cases. The stump of the appendix is inverted when possible and covered with a purse string suture, reinforced by a Lembert suture, both of catgut. If the cecal wall is indurated, the stump is ligated and cauterized. It has been the general principle to make the incision in the fascia and muscle comparatively small in order to diminish postoperative sloughing in the drained cases; when the incision is large it is necessary to suture the aponeurosis, thereby burying foreign bodies and interfering with the blood supply of a tissue easily subject to bacterial infection. When fluid is found it is removed by the suction apparatus, care being taken to traumatize the intestine as little as possible.

In the majority of cases, two cigaret drains are used, the longer placed directly to the area to be drained, and the shorter just into the peritoneal cavity, but not to the focus. The short drain is removed at the end of twenty-four hours, and the long one loosened. We hope, thereby, to drain around the cigaret rather than through it; when suppuration is profuse, the long drain is removed from forty-eight to sixty hours after operation, and a tube inserted. We believe that fewer fecal fistulas occur by this method than if tubes are inserted at the time of operation. Drainage is employed when there is pus or when oozing is likely to occur. In the cases in which drainage is employed, if the incision is small only the peritoneum is united about the drain, no sutures being placed in aponeurosis, muscle or skin.

TABLE 3.—CASES IN GROUP 1

	Number
Nonadherent	177
Adherent	407
Gangrenous	237
Perforated	116
Retrocecal	113

Of the patients, 211 (36.3 per cent.) were female, with eleven deaths, a mortality of 5.2 per cent.; 372 (63.7 per cent.) were male, with fourteen deaths, a mortality of 3.7 per cent. This shows a distinct difference from the chronic appendicitis cases. In our series of 446 chronic cases, 61.9 per cent. are female and 38.1 per cent. male. One would assume, therefore, that either chronic appendicitis in women does not as a rule become acute, or that the diagnosis of chronic appendicitis in women suffering from right lower quadrant pain is frequently incorrect. These figures, I believe, correspond with the usual published statistics.

TABLE 4.—CASES IN GROUP 2

	Number
Without adjacent peritoneal reaction	246
With free fluid	127
Acute diffuse spreading peritonitis	73
Abscess	133

By decades we see rather startling changes in the mortality (Table 2). Our figures correspond with those of Farr and others, who have shown that the mortality is higher in children than in adults. Between the ages of 10 and 30, the mortality is about 1.8 per cent.; as we pass into middle age the mortality again increases.

TABLE 5.—IMMEDIATE POSTOPERATIVE COMPLICATIONS

	Number of Cases	Per Cent.	Deaths
Pneumonia	15	2.5	4
Fecal fistula	21	3.6	2
Ileus	5	0.8	4
Femoral phlebitis	3	0.5	0
Peritoneal abscess	25	4.2	1
Subphrenic abscess	2	0.3	1

A classification of the gross pathology, that is, the operator's description at time of operation, is of necessity rather indefinite, because it is difficult to recognize the entire pathologic condition through a small incision. Arbitrarily I have separated this into two groups: (1) the pathology of the appendix itself, and (2) the reaction of the peritoneum. There are four subdivisions of the latter group:

* From the Second Surgical Division of the New York Hospital.

(*a*) without reaction of the adjacent peritoneum but with acute inflammation of the appendix itself; (*b*) with free fluid—the cases in which serum or cloudy fluid escapes on opening the peritoneal cavity, but in which there is no general peritoneal reaction; (*c*) with acute spreading or diffuse peritonitis; (*d*) with abscess.

ABDOMINAL COMPLICATIONS OF GROUP 2

(*a*) In the subdivision without adjacent peritoneal reaction, infection of the wound occurred in thirteen cases (5.2 per cent.); hematoma, one case; fecal fistula, one case (an adherent appendix drained on account of oozing). One patient developed a pelvic abscess, which was drained at a second operation.

TABLE 6.—MORTALITY IN GROUP 2

	Cases	Deaths	Mortality Per Cent.
Without adjacent peritoneal reaction	246	2	0.8
With free fluid	127	5	3.9
Acute diffuse peritonitis	73	13	17.8
Abscess	133	5	3.7

There was one death due to the development of acute diffuse peritonitis on the third day after operation. Seven postoperative hernias (2.8 per cent.) developed after the patients had left the hospital.

(*b*) In the cases with free fluid, seventy-seven were drained and fifty closed without drainage. Six secondary abdominal abscesses were incised and drained, three having been drained and three not drained at the primary operation. Five deaths occurred in cases in which four had been drained and one not drained. There were seven postoperative hernias (5.5 per cent.).

(*c*) There were seventy-three cases with acute diffuse or spreading peritonitis. Seven abdominal collections of pus (5.2 per cent.) were later incised and drained. There was one thoracotomy for subphrenic abscess; there were five fecal fistulas (6.8 per cent.) and three cases of ileus (4.1 per cent.). There were thirteen deaths. Eleven postoperative hernias (15.6 per cent.) have developed since the patients left the hospital.

TABLE 7.—SECONDARY COMPLICATIONS FOLLOWING OPERATION AND CONTRIBUTING TOWARD FATALITY

	Cases
Acute diffuse peritonitis developed after operation	2
Ileus	4
Pneumonia	4
Fecal fistula	2
Subphrenic abscess	1

(*d*) There was abscess in 133 cases. Nine secondary collections of pus in the abdomen (6.7 per cent.) were drained. Ileus occurred twice, with one colostomy for its relief. There was fecal fistula in fifteen cases (11.2 per cent.). There were five deaths. Twenty-four (18.7 per cent.) ventral hernias have since developed. There were eleven patients from whom the appendix was not removed at the primary operation. One patient died, one was later drained for a secondary collection, and two at a subsequent time had their appendixes removed with repair of sinus or hernia at another hospital. Three other patients developed ventral hernias.

DEATHS

There were twenty-five deaths in this series, or a mortality of 4.2 per cent. Twenty-three patients died in the hospital. Of the two cases in which death occurred after leaving the hospital, one patient had been sent to a convalescent home, apparently well, but he developed acute general peritonitis while there, and was brought back to the hospital, and a laparotomy with drainage was performed, but he died three days later. The other patient, a child, with a fecal fistula, was taken from the hospital against advice on the tenth day and died twenty days later.

Two patients died after closure without drainage: One patient, aged 24, developed acute diffuse peritonitis on the third day, and died two days later. The other, a man, aged 31, with free fluid at operation, contracted a pelvic and a subdiaphragmatic abscess, both of which were drained; but he died of gradual inanition and sepsis.

DATA OBTAINED BY MEANS OF FOLLOW-UP WORK

Of the 559 patients that survived operation, 500 (89.4 per cent.) have been followed from three to sixty months, the majority for fifteen months. In following our patients we have tried to ascertain the general state of health; any complaints; whether there is gain or loss of weight, and how soon they were able to return to their normal economic activity.

On physical examination, notes are made of the local and general conditions.

Weak Wounds.—Weak scars, in which there was deficiency of the external oblique aponeurosis, were noted in thirty-four cases; these are often potential hernias; but a number have been followed from three to four years without any observed change, and others reported weak at the first examination have been reported firm at a subsequent time.

TABLE 8.—AGE INCIDENCE OF HERNIA

Age	Cases	Hernia	Per Cent.
From 0 to 10	49	5	17.1
From 11 to 20	180	10	5.5
From 21 to 30	157	12	7.7
From 31 to 40	70	7	10.0
From 41 to 50	39	11	28.2
From 51 to 60	4	1	25.0
From 61 to 70	1	0	0.0

Postoperative Hernias.—In compiling the statistics on postoperative hernia the percentages have been taken from the 500 followed cases, as it would be unfair to base any assumptions on the patients not followed. This is too often done in similar analyses. There were forty-nine hernias (9.8 per cent.), thirty-five (10.8 per cent.) among 323 male patients, and fourteen (7.9 per cent.) among 177 female patients.

It is evident that the formation of hernias is influenced by poor musculature and by lowered resistance, as hernia is more frequent in infants and after 40 years; moreover, as the years from 11 to 40 are the most active, it is difficult to assume that muscular exercise and strain following operation are marked contributing factors toward the production of hernia.

Among 205 cases not drained there were four hernias (1.9 per cent.); among 295 cases drained, forty-five hernias (15 per cent.).

Cases not Drained: One patient had a hematoma in the wound, which was opened and the wound healed by granulation; two patients developed infected wounds, which were treated by incision and drainage; one case apparently healed by first intention, and the patient left the hospital on the tenth day.

Cases Drained: In 258 cases in which the McBurney incision was employed there were thirty-eight hernias

(14.7 per cent.); in thirty-seven cases with the right rectus incision, seven hernias (21.6 per cent.). While this series is too small for strict deductions, it shows, nevertheless, a distinct increase of hernia in the right rectus over the McBurney incision.

The average time the patients who developed hernia spent in the hospital after operation was twenty-seven days; thirty-two (65.3 per cent.) left the hospital within four weeks: five between seven and fourteen days; thirteen between fifteen and twenty-one days, and fourteen between twenty-two and twenty-eight days. It has been difficult to determine whether early return to work has been a factor. Seventeen patients stated how soon they returned to work after leaving the hospital, the average time being 5.8 weeks, which is slightly less than the average of all cases of acute appendicitis followed (i. e., 6.5 weeks). Nine of the seventeen patients (53 per cent.) returned to work within four weeks after leaving the hospital.

That prolonged drainage is an important factor is shown by the fact that following appendectomy, nine out of the forty-nine patients that developed hernia had had their wounds reopened and drained for secondary abscesses in the abdomen; and, moreover, that in the fourteen cases in which the appendix was not removed at the primary operation for fear of breaking up the abscess cavity wall and contaminating the peritoneal cavity, or on account of the serious condition of the patient, five (35.0 per cent.) developed hernias.

Repair of Hernia.—Twenty-two patients were operated on for postoperative hernia by us, with no recurrence. Two patients were operated on at other hospitals, with satisfactory results. No mortality occurred resultant to the operation for repair of hernia. One case of intestinal obstruction occurred after the repair of hernia; laparotomy was performed in this case, a band of adhesions was freed, and a satisfactory recovery took place.

General Health.—This was classified as good or improved in 476 cases (95.2 per cent.); fair in fifteen (2.6 per cent.), and poor in eleven (2.2 per cent.).

In the fair cases, six patients complained of abdominal pain; two of obstinate constipation, and two of pain in the region of the gallbladder; two had chronic endocarditis, and one, chronic pulmonary tuberculosis.

In the poor cases, seven patients complained of abdominal pain; one had ulcer of the duodenum; one, rheumatism; one repeated fracture of the humerus, and one, intestinal obstruction.

Cases in which operation was performed for other conditions after the patient had left the hospital were: adhesions of the peritoneum, one case; intestinal obstruction, one; empyema, six weeks after leaving the hospital, one; mastoid, seven weeks after leaving the hospital, one case.

Late death, several weeks after the patient left the hospital, occurred in one case of chronic pulmonary tuberculosis, and in one case of acute endocarditis.

Digestive Symptoms.—On admission, forty-three patients complained of digestive disturbances of considerable import and lasting for various periods of time before the onset of the acute attack; thirty-five out of the forty-three (81.4 per cent.) were cured by operation.

Constipation: Seventy-four patients gave a history of chronic constipation; forty-nine (66.2 per cent.) were relieved of the constipation. On the other hand, twenty patients who, previous to operation, had not complained of indigestion, have had some disturbance of digestion for various lengths of time, and twenty-nine were more or less constipated. The twenty patients developing digestive disturbances are evenly divided between the drained and the nondrained cases. It is noticed, however, that the bulk of nondrained cases in which indigestion is complained of are in children. To a certain degree these figures are inaccurate, because when patients are admitted they are suffering acute pain and they are likely to minimize past digestive disturbances, while those returning to a follow-up clinic will emphasize any disturbance of health.

Weight.—As appendicitis is largely a disease of young adults, it is natural that a gain in weight should occur. Our series shows that eighty-one (16.2 per cent.) have mentioned a gain of weight, that thirteen (2.6 per cent.) have complained of loss of weight, while in the remaining cases the weight has been about stationary or has not been mentioned. Several patients have gained from 20 to 30 pounds.

Economic.—Note has been made of the economic ability in 377 cases (75 per cent.). Of this number, nine patients (2.3 per cent.) claimed that they were incapable of working, and six (1.6 per cent.) were capable of doing only light tasks, while 362 (96 per cent.) returned to their former occupations. One hundred and fifty-four stated how soon they returned to normal work after leaving the hospital. The average time was 6.5 weeks, although eighty-eight (57.1 per cent.) returned to work within four weeks. This group may be thus subdivided: Returned to work within one week, eleven; between one and two weeks, twenty-five; between two and three weeks, twenty-five, and between three and four weeks, twenty-seven.

COMMENT

The review of a series of cases is in reality taking a list of stock. There are certain questions we ask ourselves in regard to our results, and, although we may have assumed that we had few complications, an analysis often changes our entire conception of the work accomplished. Years ago we were taught that if operation was not performed at the onset of the attack, it was wise to wait until the formation of the abscess. From the number of late cases we receive, one might assume that many members of the profession still believe this precept; but a study of our abscess cases shows that there is no decrease in mortality over acute appendicitis with free fluid, while the secondary complications and late sequelae are greatly increased with abscess.

As a matter of economic efficiency, a patient spends much less time in the hospital and is returned to his normal occupation in a much shorter time if his acutely diseased appendix is removed at the earliest possible moment.

Regarding the omission of drainage in questionable cases, the fact that two of our patients who died (8 per cent. of the entire mortality in our series) might have been saved by drainage emphasized the old dictum, "When in doubt, drain."

Postoperative hernias occurred in 15 per cent. of drained cases, as revealed by an efficient follow-up system. The recognition of this high rate of incidence will be an incentive to every surgeon to attempt to reduce these figures in the future.

Prolonged drainage seems to us the greatest factor toward the production of postoperative hernia. The average time that these patients were kept in the hos-

pital, twenty-seven days, as compared with nineteen days, the average of all the drained cases, suggests that it is not a question of getting the patient out of bed too soon; and as the percentage is relatively low between the years from 11 to 30, muscular exercise and hard work following operation are smaller factors than we had assumed. Our endeavor, therefore must be directed toward small incisions with adequate drainage, protection being given as far as possible to the aponeurosis of the external oblique, which is susceptible to infection and is prone to slough when traumatized.

We have for some time been using the Carrel-Dakin technic in our drained cases, beginning about the fourth day after operation, and have performed a number of secondary closures with suture of the muscles. We believe that this will reduce the number of hernias in the future.

CONCLUSIONS

1. The operation should be performed as soon as the diagnosis is made. Delay increases the mortality and postoperative complications, and prolongs convalescence.

2. Questionable cases should be drained. The possibility of hernia is better than an occasional fatality.

3. Postoperative hernia occurs more frequently than is commonly supposed after drainage, i. e., 15 per cent.

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HYDROGEN-ION CONCENTRATION OF THE CONTENTS OF THE SMALL INTESTINE

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Our object in this paper is to give the results of our study of the acidity of the contents of the small intestine, and to discuss the causes of the prevalent erroneous impression that the intestinal content is alkaline. In order to do this it is necessary to go into the history of the subject. The reaction of the intestinal contents depends on the relative proportions of its ingredients: foods, saliva, gastric juice, pancreatic juice, bile and succus entericus. Most foods are slightly acid,[1] the saliva fluctuates about the neutral point, the gastric juice is about one tenth normal hydrochloric acid, the bile is slightly acid (Foa, 1905), the pancreatic juice is alkaline, and the succus entericus turns litmus paper blue. Since there seems to be a tendency to deduce the reaction of the chyme and chyle from their components, a history of all the digestive juices bears on the point in question.

Early writers supposed the process of digestion to be a fermentation similar to that occurring outside the body, and ascribed the acidity of the stomach contents to a similar process as in the formation of vinegar. Van Helmont,[2] in 1648, recognized a distinction between these processes, for he says that if the gastric ferment were only an acid, vinegar alone would be able to digest all our food. He says, further, that the acid chyle on passing into the duodenum changes from an acid into a salt. Boerhaave,[3] in 1708, denied the acidity of the gastric juice. Haller,[4] in 1765, asserted that saliva and bile are neither acid nor alkaline, and supposed the acidity of the stomach to be due to fermentation. The gastric juice of birds turned blue paper red in Reaumur's[5] experiments, 1752. Spallanzani[6] pointed out that most samples of gastric juice that had been collected up to his time were contaminated with bile regurgitated from the duodenum, and that he was able to collect pure gastric juice from dogs. Scopoli analyzed a sample for him and found that it precipitated silver chlorid (luna cornea) from a silver solution. Spallanzani never convinced himself that the *acid* in the stomach was not due to acetic acid fermentation, but he said *digestion* was not alcoholic, acetic or putrid fermentation, but was a solution of the food by other means. Similar results to those of Spallanzani were published at the same time but independently by Stevens[7] of Edinburgh, in 1877; and John Hunter[8] had already (1772) determined that the gastric juice is acid in a great variety of animals. Carminati, in 1785, showed that the presence of food in the stomach caused acid to be secreted.

It seems evident from the foregoing that nothing very positive might be said in a textbook about the reaction of the digestive tract. The third English edition of Haller's "First Lines of Physiology,"[9] published in 1801, gave a very vague account of digestion. One correct observation is reiterated, however, and that is that bile and pancreatic juice frequently regurgitate into the stomach. Richerand's Physiology,[10] 1808, gives but very little better account. In 1824, Prout[11] showed that the acid in the stomach is hydrochloric acid. The French Academy of Science offered a prize for the best work on the chemistry and physiology of digestion. In 1826, two papers were submitted in competition for the prize, the first by Lassaigne and Leuret and the second by Tiedemann and Gmelin.[12] The last named authors found that saliva contained bicarbonates that caused it to effervesce on addition of acid; the secretion flowing from a tube in the pancreatic duct reddened litmus at first but later became alkaline; the contents of the small intestine of starving animals was acid but became neutral as the ileocecal valve was approached, and the cecum was acid. They found that the intestinal secretion is alkaline but not enough to neutralize the intestinal contents. In Dunglison's[13] "Human Physiology," 1838, the foregoing authors are thus referred to: Leuret and Lassaigne had found that diluted vinegar applied to the mouths of the bile duct and pancreatic duct caused a discharge of bile and pancreatic juice, and that the acid chyme must necessarily induce the same effects, and Tiedemann and Gmelin suggest that the soda of the bile unites with the acid of the chyme, and the contents of the ileum become less and less acid; Magendie collected gas from the small intestines of three decapi-

1. McClendon, Myers, Culligan and Geydesen: J. Biol. Chem. **38**: 535, 1919.
2. Van Helmont: Ortus Medicinae, 1648.
3. Boerhaave: Institutiones Medicae, 1708.
4. Haller: Elementa Physiologiae, 1765.
5. Reaumur: Mem. Acad. Sc. Paris, 1752.
6. Spallanzani: First memoir on digestion, 1777.
7. Stevens: Inaug. Diss., Edinburgh, 1777.
8. Hunter: Phil. Tr. Roy. Soc. London, 1772.
9. Haller: First Lines of Physiology, translated from third Latin edition, Edinburgh, 1801, p. 318.
10. Richerand: The Elements of Physiology, translated by Kerrison, Philadelphia, 1808, p. 65.
11. Prout: Annals of Philosophy, 1824, p. 117.
12. Tiedemann and Gmelin: Die Verdauung nach Versuchen, Heidelberg, 1826.
13. Dunglison: Human Physiology, Ed. 3, Philadelphia, 1838, pp. 533-537.

tated criminals, and the analysis by Chevreul showed an average of about equal parts of carbon dioxid, hydrogen and nitrogen. This last observation may be taken as indicating that the acidity of the intestinal contents may be partly due to free carbonic acid. Similar accounts may be found in Oliver's [14] "First Lines of Physiology," 1835, and Roget's [15] "Outlines of Physiology," 1839, and some of these observations are given by Hutin [16] and Broussais,[17] in 1828.

Busch,[18] in 1858, studied a patient in whom the contents of the first part of the jejunum flowed out through a fistula in the abdominal wall, and the remainder of the jejunum communicated with the outside by a second fistula. He found the intestinal secretion obtained from the second fistula to be always alkaline and to digest certain foodstuffs. The jejunal contents obtained from the first fistula emulsified fat when alkaline, but only partially emulsified it when acid. When collected after fasting it was nearly always neutral, seldom slightly acid or slightly alkaline; after feeding, it varied greatly, being acid, neutral or alkaline. The second edition of Ludwig's [19] Physiology, 1861, fails to give a clear account of the reaction of the intestine; one point, however, seems worthy of quotation, and that is that the action of the gastric juice makes the food easier to digest in the intestine. Kühne, in 1867, found that when pancreatic juice is incubated with fibrin or coagulated egg white, the decomposition products of the protein do not neutralize the alkalinity of the juice. Some textbook writers seem to have been guided by observations on pure secretions of digestive glands or mixed secretions obtained from starving animals. Dalton's [20] Physiology, 1875, refers to the alkaline reaction of the jejunal contents obtained by Bernard from a dog that had fasted twelve days.

In 1879, Ewald [21] reported a study of the intestinal contents of a patient with fistula of the ileum, stating that it was acid or neutral but never alkaline. Demant found the intestinal secretion (succus entericus) obtained from a similar fistula to be markedly alkaline. In 1891, Macfadyen, Nencki and Sieber,[22] with the aid of a grant from the Elizabeth Thompson Science Fund of Boston, studied the outflow from a fistula in the lower part of the ileum of a patient, continuously for six months. They found the contents of both ileum and cecum acid in reaction. The ileum was never alkaline, and seemed to be the more acid the greater its sugar content. On one day the sugar content rose to 4.7 per cent., and the filtered juice when titrated, litmus or cyanin being employed as indicator, was 0.03 normal acid. The acids were chiefly acetic and other fatty acids, and both optically active and inactive lactic acids. This paper seems not to have been widely read, as Foster,[23] in 1894, stated that the contents of the small intestine of dogs is acid throughout, after a diet of fat, starch or meat, but he supposed that in man the contents have probably become distinctly alkaline before they have passed far down the duodenum.

In 1905, London and Sulima [24] observed that the fluid collected from a jejunal fistula in a dog was neutral. They found that a mixture of 37 parts of bile, 83 parts of pancreatic juice and 74 parts of gastric juice was neutral. In 1906, London and Polowzowa [25] titrated the total outflow from fistulas in dogs after feeding 200 gm. of bread. The total acidity of the outflow from the duodenal fistula was 82 c.c. of tenth normal acid (average of three experiments). The average "alkalescence" from the jejunal fistula was about 7 c.c. of tenth normal alkali, and that from the ileum 57 c.c., and from the cecum, 24 c.c. Since the duodenal fistula was very close to the duodenojejunal junction, and the jejunal fistula was less than a meter lower down; and since the secretion of the intestine contains about one tenth normal sodium bicarbonate, in order to obtain the foregoing results, about 89 c.c. of it would have to be secreted in less than a meter length of jejunum, and 50 c.c. more in the ileum during the duration of the experiment (about five hours). From the observations of Boldyreff, in 1907, this quantity of secretion might seem possible to obtain. But since it is not possible to titrate a bicarbonate solution containing protein without special apparatus for driving off the carbon dioxid or with the use of an indicator of the range of methyl orange, and since no mention was made of the former, we assume that methyl orange was used, and hence the results have no bearing on the actual reaction of the intestinal contents. In 1908, London and Sulima [26] fed fasting dogs 200 gm. of ground horse flesh. In one with a jejunal fistula, the flow commenced six minutes after feeding, and was alkaline. Twenty minutes after eating, the flow from the fistula contained particles of meat and was acid to litmus paper. Eighty minutes after eating, the particles of meat virtually ceased to appear and the reaction was alkaline to litmus paper.

Cohnheim,[27] in 1907, said that the acid from the stomach is more than neutralized by the alkali from the pancreas, bile and intestinal secretion, but that the resulting alkalinity is in turn neutralized by carbon dioxid and organic acids. These organic acids arise partly from the hydrolysis of fat of the food and partly from acid fermentation (lactic and acetic acids). The reaction of the intestinal contents is clouded by ignorance as to the behavior of indicators. According to Matthes and Marquardsen, Pflüger, Macfadyen, Nencki and Sieber, Schmidt, Moore and Rockwood, and Munk, one might gain the impression that the contents of the intestine are nearly neutral. According to Schierbeck, the reaction of the intestine is the optimum for the action of its enzymes. Luciani [28] quotes the same authors differently. It is only in the last part of the ileum that the contents give a neutral or alkaline reaction. The cause of the acidity of the intestinal contents has been studied by Nencki and Zaleski, Moore and Rockwood, Hemmeter, Foa, Lombroso, and others. Foa, in 1906, suggested that the pancreatic juice and succus entericus were insufficient to neutralize the gastric juice. Lumbroso and also Rossi objected to this view, and Foa, in 1908, modified his statement,

14. Oliver: First Lines of Physiology, Boston. 1835, pp. 235, 248.
15. Roget: Outlines of Physiology, Philadelphia, 1839, p. 159, footnote; pp. 161, 165, 166.
16. Hutin: Manual of the Physiology of Man, translated by Tongo, Philadelphia. 1828, p. 53.
17. Broussais: A Treatise on Physiology applied to Pathology, translated by Bell, second American edition, Philadelphia, 1828, pp. 320, 322.
18. Busch: Arch. f. path. Anat. u. Physiol. **14**: 140, 1858.
19. Ludwig: Lehrbuch der Physiologie des Menschen, Ed. 2, Leipzig 2: 650, 1861.
20. Dalton: A Treatise on Human Physiology, Ed. 6, Philadelphia, 1875, pp. 178, 181.
21. Ewald: Arch. f. path, Anat. u. Physiol. **75**: 409, 1879.
22. Macfadyen, Nencki and Sieber: Arch. f. exper. Path. u. Pharmakol. **28**: 318, 1891.
23. Foster: A Text Book of Physiology (abridged), New York, 1896, p. 391.
24. London and Sulima: Ztschr. f. physiol. Chem. **46**: 211, 215, 1905.
25. London and Polowzowa: Ztschr. f. physiol. Chem. **49**: 336, 1906.
26. London and Sulima: Ztschr. f. physiol. Chem. **56**: 389, 1908.
27. Cohnheim, in Nagel: Handbuch der Physiologie des Menschen, 1907.
28. Luciani: Human Physiology, translated by Welby, London, 1913, p. 207.

saying that the acidity of the intestinal content is due to acidmetaprotein.

Lastly, in examining texts used now by medical students, we find that Hammarsten [29] considers the contents of the intestine acid. Mathews [30] states that the reaction of the intestinal contents may be acid and that acidity is increased by carbohydrate fermentation, and that this has a part in checking bacterial putrefaction. He remarks further that bile is neutral or faintly alkaline to litmus, but aids in neutralizing the gastric juice; the pancreatic juice is strongly alkaline, and its alkalinity when titrated, with litmus as indicator, is from 0.01 to 0.015 normal; the duodenal secretion has a $p_H = 7.7$, and the optimum p_H for pancreatic lipase is 8. Starling [31] states that the contents of the intestine are alkaline to methyl orange and acid to phenolphthalein. Stewart [32] observes that in the intestine it is possible that trypsin may perform its work in a medium that is sometimes acid, and that the acidity may check the activity of bacteria. Howell [33] states that the contents of the intestine may be acid by carbohydrate fermentation. Burton-Opitz [34] remarks that the secretions poured into the intestine are alkaline, that trypsin acts in an alkaline medium, and that the pancreatic juice turns the acid metaprotein of the chyle into alkaline metaprotein, but that the reaction may later become neutral. He emphasizes the importance of an alkaline reaction in fat digestion.

Michaelis [35] gives the determinations of Auerbach and Pick with the hydrogen electrode to show that the intestinal secretions of dogs are alkaline, and numerous curves are given to show that intestinal enzymes act best in alkaline mediums, whereas the feces are stated to be acid.

To summarize the literature on the reaction of intestinal contents, we may say that a marked lack of agreement exists. This lack of agreement may be due partly to erroneous observation and poor technic, and partly to an attempt to harmonize experiments in vitro with what happens in vivo. It has been found that the pancreatic enzymes act on some proteins and fats best in an alkaline medium. How can they act on fats in an acid medium in the intestine? The answer might be that the bile permits the hydrolysis of fat in a slightly acid medium. The experiments of Bradley are interpreted as showing that the optimal hydrogen-ion concentration for protease action is the optimal hydrogen-ion concentration for the swelling of the substrate, and after the substrate is once swollen the hydrogen-ion concentration may be changed without the same effect on rate of proteolysis as if the same change had been made at the start. Michaelis [36] objects to this view, but it must be remembered that Long and Hull [37] found that the optimal p_H for tryptic digestion of casein is between 5.5 and 6.3 and not between 7 and 8.

It was found by McClendon [1] and his collaborators that the contents of the duodenum of infants and the small intestine of pups, dogs, cats, suckling rabbits (and adult rabbits on a sugar diet) were acid, and the only place where alkalinity was found was the last part of the ileum in the herbivora on a diet deficient in soluble carbohydrates. It is our object in this paper to extend these observations to man.

29. Hammarsten: Physiological Chemistry, translated by Mandel, New York, 1914, pp. 512, 513.
30. Mathews: Physiological Chemistry, New York, 1915, pp. 387, 389, 397, 407, 413, 414, 438, 445.
31. Starling: Principles of Human Physiology, Philadelphia, 1912, p. 791.
32. Stewart: A Manual of Physiology, Ed. 8, New York, 1918, p. 420.
33. Howell: Text Book of Physiology, Ed. 7, Philadelphia, 1918, p. 814.
34. Burton-Opitz: A Text-Book of Physiology, Philadelphia, 1920, pp. 931, 935, 949, 994, 995, 996.
35. Michaelis: Wasserstoffionenkonzentration, Berlin, 1914.
36. Michaelis: Deutsch. med. Wchnschr. **46**: 126, 1920.
37. Long and Hull: J. Am. Chem. Soc. **39**: 1051, 1917.

EXPERIMENTAL

In obtaining intestinal contents we used the intestinal tube as described by Buckstein,[38] using smooth rubber tubing of 1.5 mm. internal diameter and 3.5 mm. external diameter, cut into 7 foot lengths. The end to be swallowed had holes burned in the wall with a hot wire for about 4 inches. To this end was tied, with No. 4, twenty-day, chromatized catgut, an oval sinker that weighed 6 gm. The sinker was made of polished iron and had a ring on one end large enough to thread the catgut through. The object of the catgut was to resist digestion until the tube reached the right level and then to dissolve and release the sinker. We found, however, that the tube could be pulled out with the sinker attached, and have now discarded this method and substituted the Einhorn duodenal tube tip. Andresen,[39] 1918, withdrew a Rehfuss tip from the jejunum in a similar manner.

Tubes were swallowed by two healthy men, aged about 25 years, at 10 a. m. on empty stomachs (no breakfast). After having swallowed 36 cm. of the tube the subject lay on his right side with hips elevated for about thirty minutes. After the passage of the pylorus had been ascertained by the flow of duodenal contents from the tube or by fluoroscopy, the subject went about his usual sedentary and athletic activities. Change of position and activity of the abdominal muscles hastened the descent of the tube. This was especially noticed in regard to swimming and riding in an automobile. In case the presence of the tube in the throat became annoying, the subject found relief by eating bananas or ice cream about 3 o'clock each afternoon. The tubes were withdrawn at the end of four days and three hours (afternoon of the fifth day). The hydrogen-ion concentration was determined by the hydrogen electrode. The p_H varied from 4.1 to 6.5. The acidity was not entirely due to carbon dioxid, as the contents remained acid after removal of carbon dioxid.[40]

The subjoined protocol gives the food eaten and p_H of the intestinal contents:

First Day.—Lunch (noon), fried potatoes, 2 eggs, apricots, bread and butter; 3 p. m., banana and ice cream. Fluoroscopy: Subject A showed the tube in the third part of the duodenum, and B in the jejunum. Dinner (6 p. m.), potatoes, fish, bread, pineapple and cake. Samples taken at 7:30 p. m.: Subject A, $p_H = 5.1$; Subject B, $p_H = 4.5$; 7:45 p. m.; Subject A, $p_H = 4.5$.

Second Day.—Breakfast (7 a. m.), corn-flakes, toast, coffee. Samples, 10 a. m.: Subject A, $p_H = 4.9$; Subject B, $p_H = 5.2$. Fluoroscopy: Subjects A and B showed the tube in the jejunum. Lunch, potato, bread, butter, sausage, apricots, radishes; 3 p. m., ice cream and banana. Dinner, beef, potato, bread, butter, pudding.

Third Day.—Dinner, radishes, potatoes, beef, bread, butter, pudding; 3 p. m., candy. Supper, beef, bread, butter, coffee, pears.

Fourth Day.—Breakfast, coffee, toast, corn-flakes. Samples, 10 a. m.: Subject A, $p_H = 4.1$; Subject B, $p_H = 4.4$. Fluoros-

38. Buckstein, Jacob: The Intestinal Tube, J. A. M. A. **74**: 664 (March 6) 1920.
39. Andresen, A. F. R.: Ann. Surg. **67**: 565 (May) 1918.
40. In addition to the references already given, the following will be found of interest:
Adelon: Physiologie de l'homme, Paris **2**: 544, 567, 1823.
Long: J. Am. Chem. Soc. **39**: 1278, 1917.
McClendon, J. F.: Am. J. Physiol. **38**: 191, 1915.
Nagel: Handbuch der Physiologie des Menschen **2**: 602, 1907.
Prout: Bridgewater Treatise, American edition, Philadelphia, 1834, p. 268.

copy: In Subject B, the weight had become detached from the tube. Lunch, ham, potato, bread, butter, apricots, cake. Samples, 2 p. m.: Subject A, $p_H = 4.2$; Subject B, $p_H = 6.2$; 3 p. m., banana and ice cream. Sample, 5 p. m.: Subject B, $p_H = 6.4$ Dinner, pork chops, bread, butter, lettuce, potato, pineapple. (In both subjects the tubes had descended 7 feet from the teeth.)

Fifth Day.—Breakfast, corn-flakes, toast, coffee. Samples, 10 a. m.: Subject A, $p_H = 6.5$; Subject B, $p_H = 5.9$. Fluoroscopy: Both subjects removed tubes (Subject A with weight attached).

CHRONIC PELVIC PERITONITIS OF UNKNOWN ETIOLOGY OCCURRING IN WOMEN

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Recently I have encountered four cases presenting a rather characteristic clinical picture and definite pathologic findings, without any demonstrable etiologic factor. The histories and the findings of the cases are so similar that recounting one will suffice for the group:

Mrs. A. L., aged 24, with irrelevant family history, had always been nervous but had had *no acute illness.* Her bowels had been constipated, especially for the last few months. She began to menstruate at 13 regularly every twenty-eight days; the duration was five or six days with a profuse flow for one or two days. She had severe pain for one or two days during the period. The pain was in the form of cramps in the lower abdomen, and severe backache. She had been married one year and was never pregnant. She complained of severe dysmenorrhea, backache more or less constant, especially marked about the time of the periods, dyspareunia and sterility.

The patient was thin and neurotic. The general physical examination was negative. There was a lordotic tendency and some visceroptosis. Tenderness could be elicited in both iliac fossae. The introitus, vulva and vagina were normal. The cervix was small and pointed forward. The uterus was small, retroverted and retroflexed, and was not freely movable. Both adnexa were prolapsed, not freely movable, and manipulation elicited pain.

For the relief of the backache and dysmenorrhea and to correct the malposition, a laparotomy was performed. The pelvis was found filled with adhesions. The uterus was retroverted and adherent to the sigmoid. Both adnexa were prolapsed in the culdesac and adherent to the pelvic wall and to the uterus. The tubes were sealed by the adhesions but not distended; the ovaries were microcystic, adherent to the tubes by fine and old adhesions, and also to the uterus and pelvic peritoneum. The appendix also was involved in the adhesions, though it showed no gross inflammatory involvement of its wall or mucosa, nor did the subsequent histologic examination reveal any inflammatory lesion except a thickening of the peritoneal coat.

This case history would apply equally well to all the cases except that in one patient the tubes were patent.

The question, of course, arises as to the etiology of these adhesions. That there must be or must have been a source of irritation is undoubted, but the type of irritation is difficult, and in my four cases impossible to determine. Naturally a possible infection must be considered, but in none of the cases was a history of any type of infection obtainable.

There was no physical evidence of a gonorrhea. The urethra, Skene's ducts, and the bartholinian exits and vulva were normal. The vaginal mucosa and cervix were also normal. Smears and cultures taken subsequently were negative for gonococci. There was no history or evidence of a previous pregnancy, miscarriage or instrumental manipulation, and it therefore seems most reasonable to rule out as an etiologic factor any infection contracted in this fashion. Sections of the tubes showed no inflammatory lesion of the mucosa or muscularis in two cases, and in both of these cases stains for bacteria proved negative.

An appendicular infection with subsequent involvement of the pelvic peritoneum must be considered; but in the group under discussion, the appendix, while involved in the general process, presented a lesion limited entirely to the serosa, and that of the nature of a chronic adhesive process, such as is so commonly seen in cases of pelvic infection with secondary involvement of the surrounding viscera. There is one other possibility of an extragenital condition of inflammatory nature. A chronic irritation from contamination of the pelvic peritoneum by the colon bacillus might be a possibility in some of these cases. This condition might be due to an impairment of the intestinal wall because of the chronic constipation that is present in this group. Colon bacilli have been shown to possess the power of penetrating the intestinal wall when it is in any way interfered with, either in its blood supply or in its general tone. While this possibility of an infection of low grade virulence due to the presence of these organisms and the resulting adhesive peritonitis must be entertained, I feel that in view of the frequency of the impairment of bowel action and the consequent constipation, and the relative infrequency of this peculiar pelvic condition, we must look for other factors to explain it.

Two other possible sources of irritation must be considered: One is the occasional case of bleeding from the tube at or between menstrual periods and the occasional discharge of tubal secretion through the fimbriated extremity, as in cases of so-called "Mittelschmerz," which may give rise to a chronic irritation and so to the formation of pelvic adhesion of this type. In none of the cases, however, did the pelvis contain blood, nor were the adhesions blood stained or pigmented. Still, such an etiologic possibility must be entertained.

The second possibility implicates the ovary, which, because of the retroverted uterus, is dragged down into the culdesac and anchored there. Periodically with the rupture of a graafian follicle there is deposited an ovum with a minute quantity of fluid on one or the other side of the pelvis. The ovum, if it does not reach the tubal lumen, dies and is absorbed. Its presence and the necessary activity that causes its absorption may have a bearing on the condition under discussion. Can such a process result in the formation of the adhesive condition that is found at operation? Such a mechanism would account for some of the symptoms, as the sterility, and the exaggeration of pain during the menstrual period.

All in all, this condition of pelvic inflammation does not fit into the classification of pelvic infections as we now understand them, and I believe close attention to this type of case both clinically and histologically may help to clear up the question of its etiology. The condition also has a direct bearing on the great question of female sterility. No amount of manipulation, variation in the exhibition of endocrine products, or other conservative methods will offer a possible hope of pregnancy. In this type of lesion, a laparotomy with sharp or blunt separation of the adhesions, and an

attempt to reestablish the patency of the tube by a plastic operation and to bring and maintain the ovaries in their proper position offer the only chance for a good result.

Culbertson, in a discussion of Doederlein's paper at the Chicago Gynecological Society, mentioned this type of case and stated that nowhere in the literature could he find an accurate account of these cases. I also have been unable to find any information that would help in establishing an etiologic factor for this clinical condition.

A DIABETIC DIETARY

EDWARD E. CORNWALL, M.D.
BROOKLYN

In the diabetic dietary here given, selected articles of food are arranged in groups according to the carbohydrate content of 1 ounce, 30 gm., portions, and according to some other considerations. The protein and fat content and caloric value of the 1 ounce portions of the individual articles are also given.

Group 1 contains articles eaten for their protein or fat, and some eaten for variety and stimulation. None of the articles in this group contain any carbohydrate.

Group 2 contains articles and fruits of small carbohydrate content, namely, 1 gm. to the ounce. The articles in this group are most useful in constructing diets in which severe restriction of carbohydrate is required.

Group 3 contains articles of small carbohydrate content, 1 gm. to the ounce, which are important sources of protein and fat, in that respect differing from the articles in Group 2.

Group 4 is the milk group, of special but limited use in diabetes; for, notwithstanding the small carbohydrate content of milk, 1.5 gm. to the ounce, the large amount of it which is taken when it is used as an important element of the diet adds considerable carbohydrate to the ration.

Group 5 contains vegetables, fruits and nuts having 2 gm. of carbohydrate to the ounce. The articles in this group can be used to supplement those in Group 2, half the quantity giving equivalent amounts of carbohydrate.

Group 6 contains vegetables, fruits and nuts having 4 gm. of carbohydrate to the ounce, and also oatmeal porridge.

Group 7 contains vegetables and fruits having 5 gm. of carbohydrate to the ounce, and also some wheat preparations.

Group 8 contains cooked potato, boiled rice and bananas, all of which contain the same carbohydrate content per ounce, 6 gm., and are consequently interchangeable in equal quantity as sources of carbohydrate.

Group 9 contains bread and dried beans, which have the same carbohydrate content, 18 gm. to the ounce. Beans are theoretically interchangeable with bread as a source of carbohydrate, but practically they are not so because of certain peculiarities of beans which make them an inferior article of food. They are admitted to the list for the sake of variety. It may be noted that baked or boiled potato, boiled rice and bananas are the carbohydrate equivalents of bread in three times the quantity.

Group 10 contains crackers and dry oatmeal, whose carbohydrate content is 20 gm. to the ounce. It is desirable to use dry oatmeal in measuring the ration in diets calling for large quantities of that article, in order to eliminate the error that might arise in making the porridge in large quantities. It is convenient to know that the ordinary Uneeda biscuit weighs about one-fourth ounce, and consequently supplies 5 gm. of carbohydrate.

DIABETIC DIETARY FOR _____ DATE _____

One Ounce, 30 Gm., Contains, Approximately:

Protein, Gm.	Fat, Gm.	Calories		Gm. Oz.	Directions
			1. No Carbohydrate		
8	5	75	Meat, poultry (cooked, lean)		
6	0	25	Fish (cooked, lean)		
6	6	75	Egg (one)		
5	15	150	Bacon (cooked)		
8	11	130	Cheese		
0	25	225	Butter		
0	30	270	Olive oil		
0	0	0	Coffee, tea, cocoa shells		
0	0	0	Broths		
0	0	100	Whisky		
20	0	80	Special flour made from casein		
			2. Carbohydrate, 1 gm.		
0.5	0	5	Vegetables (cooked); celery, vegetable marrow, tomato, okra, leeks, chard, asparagus, brussels sprouts, spinach, cauliflower, cabbage, beet greens, dandelion greens, string beans, egg plant, sauerkraut		
0.5	0	5	Vegetables (raw): lettuce, endive, cabbage, tomato, celery, watercress, cucumbers, radishes		
0	0	5	Grapefruit, lemons		
			3. Carbohydrate, 1 gm.		
6	1	35	Cottage cheese		
1	6	60	Cream (20 per cent.)		
2	0.5	15	Oysters, clams		
9	15	180	Butternuts, pignolias		
0.5	4	40	Olives		
			4. Carbohydrate, 1.5 gm.		
1	1	20	Milk		
1	0	10	Milk, skimmed; buttermilk		
			5. Carbohydrate, 2 gm.		
0.5	0	10	Vegetables (cooked): beets, carrots, squash, onions, turnips		
0.5	0	10	Vegetables (raw): onions, turnips		
0	0	10	Orange, peach, pineapple, watermelon, muskmelon, strawberries, blackberries, cranberries		
4	20	200	Brazil nuts, hickory nuts, pecans, filberts		
			6. Carbohydrate, 4 gm.		
1	0	20	Vegetables (cooked): green peas, parsnips		
0	0	15	Apples, pears, cherries, apricots, huckleberries, raspberries		
5	18	200	Walnuts, almonds, pistachios		
1	0.5	25	Oatmeal porridge (1-5)		
			7. Carbohydrate, 5 gm.		
1	0	25	Vegetables (cooked): green lima beans, green corn		
0	0	25	Plums, apples (baked), prunes (boiled)		
1	0	25	Wheat cereal porridge, macaroni (boiled)		
			8. Carbohydrate, 6 gm.		
1	0	30	Potato (baked, boiled)		
1	0	30	Rice (boiled)		
0.5	0	30	Banana		
			9. Carbohydrate, 18 gm.		
3	0	90	Bread		
6	0.5	90	Beans, dried		
			10. Carbohydrate, 20 gm.		
3	3	125	Crackers		
5	2	120	Oatmeal, dry weight		

Diabetic dietary. The original form employed is printed on a sheet measuring 8½ by 12 ¼ inches.

The practical application of this dietary is so obviously simple as hardly to require explanation. The quantities of the articles to be allowed in the daily ration should be written opposite the name of the article, or against the group or part of a group enclosed in a bracket. The carbohydrate ration should be provided for first, which is done from articles that contain comparatively little protein or fat. Then the protein ration should be provided for, which is done from articles that contain little or no carbohydrate and

varying amounts of fat, but usually not enough fat to supply the full ration of that element required. Then the fat ration can be brought up to the required amount by addition of articles that do not add much protein or carbohydrate.

For severely restricted diets, Groups 1, 2 and 3 are the regular field of choice, and these groups may supply the basis for most diabetic prescriptions.

1218 Pacific Street.

MALIGNANT ENDOCARDITIS AND METASTATIC ABSCESS IN GONOCOCCEMIA

REPORT OF A CASE IN A CHILD WITH CULTURE OF THE GONOCOCCUS FROM THE BLOOD DURING LIFE *

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Since Thayer [1] and his associates established the specific nature of endocarditis occurring as a complication of gonorrhea, many cases have been studied in adults; but this complication in gonorrheal vaginitis in infants and children is rare.

Definite suppuration in the muscles and subcutaneous tissues as a manifestation of gonococcemia is unusual.

The case I report is of interest (1) because of the age of the patient, ulcerative endocarditis being uncommon under 5 years, and (2) because of the superficial abscess in the lumbar region of gonococcic origin.

REPORT OF CASE

History.—Marguerite S., aged 23 months, entered the hospital with painful swelling of the left ankle and left wrist, and a temperature of 105. The family history was unimportant except for the statement that a friend living with the family had a vaginal discharge. The patient had never been sick before her present illness, which began about three weeks before her admission to the hospital. At that time the left foot became swollen and painful, she had fever, and a vaginal discharge was noticed. The temperature was irregular during the next two weeks, until finally the left wrist became involved and she was kept in bed on account of "weakness."

Physical Examination.—The child was well developed but poorly nourished, and irritable. Moving her limbs caused great pain. The skin was sallow, and the sclera presented a greenish yellow tint suggestive of a moderate degree of jaundice and anemia. The left ankle and left wrist were swollen and exceedingly painful. Over the lumbosacral region there was a superficial abscess, the base of which measured 2 inches in diameter. A vaginal discharge was present. The lungs were normal. The heart was not enlarged. The point of maximal impulse was just inside the nipple-line in the fourth interspace. The cardiac rhythm was rapid and irregular. There was a soft, blowing, systolic murmur audible over the entire cardiac area, heard best at the apex and transmitted to the left axilla. The abdomen was distended and there seemed to be a general tenderness. Because of the distention the abdominal viscera could not be palpated. The patellar reflexes were not exaggerated. The Kernig, Babinski and Brudzinski signs were absent. The temperature was 104, the pulse 140 and the respiratory rate 42 per minute.

Laboratory Examinations.—Vagina: Smears from the discharge showed many gram-negative, intracellular diplococci.

Abscess: This was opened under aseptic precautions, and smears of the pus showed many gram-negative intracellular and extracellular diplococci, having identically the same appearance as the vaginal discharge. Cultures were made on the only medium available at the time, Loeffler's blood serum, but no growth was obtained after forty-eight hours' incubation.

Blood: The total leukocyte count was 19,000 per cubic millimeter. The differential count revealed: neutrophils, 89 per cent.; large lymphocytes, 2 per cent., and small lymphocytes, 9 per cent.. The hemoglobin was 80 (Tallqvist). About 10 c.c. of blood was taken from the median basilic vein and cultivated on ascitic glucose broth and ascitic glucose agar with an acidity slightly under 4 (phenolphthalein). At the end of sixty hours a gram-negative biscuit-shaped diplococcus was recovered from the agar culture.

Clinical Course.—During the next few days in the hospital the temperature was very irregular, varying from 101 to 105. The pulse continued rapid, from 140 to 160, and often was imperceptible. The pain in the joints subsided considerably under rest, as also did the abdominal distention, and the child became fairly comfortable. The liver could now be felt and apparently was not enlarged. The spleen was enlarged and extended about 2 inches below the costal border. The cardiac murmur became harsh and intensified. It was the characteristic murmur of mitral regurgitation. On the seventh day in the hospital (twenty-eighth day of illness) the patient died.

Necropsy.—A partial necropsy was permitted. The abdomen was opened by an incision extending from the ensiform cartilage to the umbilicus. The omentum was slightly congested. Examination of such part of the small intestine as could be observed through this opening failed to reveal any evidence of peritonitis, although there were some petechiae in the serous covering. The spleen was enlarged and soft, but was not removed. The liver appeared normal. The heart was removed through an opening in the diaphragm. The pericardial sac contained a moderate amount of serous fluid. There were no changes in the pericardium. Examination of the heart disclosed the lesions confined to the mitral valve. On the free border of each cusp there were greenish-yellow, cauliflower vegetations. The posterior cusp was perforated, the circular opening measuring 6 mm. in diameter. The edges of the perforation were bordered with the vegetation. Cover glass preparations from the heart valve showed gram-negative diplococci. No attempt was made to grow the organisms from the valves or from the pericardial fluid.

The bacteriologic work was reviewed by Drs. D. O. Smith and Watson Campbell, pathologists to the Kansas City General Hospital, who corroborated the findings and made the following report of a microscopic study of sections of the valve:

Microscopic Examination: "Sections made through the valve show areas of ulceration with an accumulation of amorphous material attached to the surface. Surrounding the necrotic area is a zone of inflammatory reaction and cellular infiltration. Many of the infiltrating cells are of the polymorphonuclear variety. In other areas the endothelium is intact, but beneath it the tissue is undergoing degenerative change. This would indicate that it would have been but a short time until the endocardium would have broken down, producing other areas of ulceration. The muscular tissue is also somewhat involved, as shown by the tissue infiltration. A few coffee-bean shaped diplococci are found beneath the ulcerated areas.

"Diagnosis: Acute ulcerative endocarditis."

COMMENT

Many writers, in reviewing the reported cases of gonorrheal endocarditis, are unwilling to include those cases in which the organism has not been isolated from the blood during life or from the organs at necropsy. The cultivation of the gonococcus is attended with some difficulty; competent workers have failed to recover it from the blood stream and have succeeded in obtaining it from the heart valve or from the pericardial fluid. The variance in strains of the gonococcus, and the probability that it is a transient inhabitant

* From the Children's Mercy Hospital.

1. Thayer, W. S., and Blumer, George: Bull. Johns Hopkins Hosp. 7: 57 (April) 1896. Thayer, W. S., and Lazear, J. W.: J. Exper. Med. 4: 81, 1899.

of the blood stream in many cases may account in some measure for the failure to obtain it in blood cultures.

Faure-Beaulieu,[2] in 1906, collected thirty-four instances, and Dieulafoy,[3] in 1909, thirty-seven in which successful blood cultures were made. Irons [4] and later Rueck [5] have grown the organism from the blood in cases showing complications of gonorrhea.

INCIDENCE

Endocarditis is common in childhood, occurring frequently as a complication of rheumatism and chorea. Gonococcic endocarditis is rare. Gilbert [6] analyzed 197 cases from the records of the Massachusetts General Hospital, and does not mention the gonococcus as the etiologic factor in any case, although in some cases the nature of the infection was not determined.

Satterthwaite [7] analyzed 100 cases of endocarditis in children in New York City and found only one case due to the gonococcus. *Streptococcus viridans* is the common offender in the "rheumatic" endocarditis and in those cases termed slow endocarditis or endocarditis lenta.

Dunn [8] collected 304 instances of endocarditis in children, and in no case was the disease due to the gonococcus. Streptococcus ulcerative endocarditis has been reported in an infant of 6 months, and Huber [9] recovered *Streptococcus attenuans* in an infant 1 year old with endocarditis.

METASTATIC ABSCESSES

Local suppuration in the subcutaneous or muscle tissue has been reported in a comparatively few cases. Wynn [10] observed two cases of metastatic abscess formation in which the gonococci were obtained in pure culture.

Harris and Haskel [11] describe a case in a woman who had boggy swellings at the junction of the lumbar and sacral regions of four months' standing, and a marked fluctuating swelling of the calf of the right leg. The material aspirated from the swellings contained the gonococcus.

Ware [12] obtained bloody fluid from an indurated area in the postscapular region in a patient with a history of gonorrhea, in whose case cover glass preparations showed gram-negative diplococci but cultures on ordinary mediums gave no growth. Budjwid [13] reported abscesses of gonococcic origin in the muscles about the elbow and in the popliteal fossa. Harris and Haskel, in a critical review of these cases, accept Ware's case as one of metastatic gonococcic abscess formation, stating that he furnished negative cultural evidence in support of his microscopic findings. These authors do not regard Budjwid's case as an authentic case of metastasis because of the probability of extension along the tendon sheaths from the joint.

The abscess of the sacral region in the case I have described probably was the result of a localization of organisms from the blood stream due to lowered resistance in the area from pressure, a condition exactly like that which occurs in the development of a bed sore.

2. Faure-Beaulieu, Marcel: Thèse de Paris, 1906.
3. Dieulafoy: Bull. de l'Acad. de méd. **61**: 594, 1909, quoted by Irons (Footnote 4).
4. Irons, W. E.: Gonococcemia, Arch. Int. Med. **4**: 601 (Dec.) 1909.
5. Rueck, G. E.: Med. Rec. **83**: 18 (Jan. 4) 1913.
6. Gilbert, L. W.: Boston M. & S. J. **169**: 85 (July 17) 1913.
7. Satterthwaite, T. E.: Med. Rec. **83**: 18 (Jan. 4) 1913.
8. Dunn, C. H.: Tr. Am. Pediat. Soc. **25**: 237, 1913.
9. Huber, Francis: Acute Infective Endocarditis, Am. J. Dis. Child. **10**: 33 (July) 1915.
10. Wynn, W. H.: Lancet **1**: 352, 1905.
11. Harris, N. M., and Haskel, L. W.: Bull. Johns Hopkins Hosp. **15**: 395 (Dec.) 1904.
12. Ware, M. W.: Am. J. M. Sc. **122**: 40 (July) 1901.
13. Budjwid, quoted by Harris and Haskel (Footnote 11).

SYMPTOMS

The clinical symptoms of gonococcic endocarditis differ in no essential feature from those due to other organisms. The usual features are irregular, intermittent fever, chills, rapid pulse, polymorphonuclear leukocytosis and anemia suggesting a considerable degree of intoxication. As in the case herein reported, the intensity of the murmur, increasing from day to day, has been noted by several observers.

400 Portsmouth Building.

THE DIAGNOSTIC VALUE OF CARDIAC MURMURS *

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This paper comprises a preface and a few dogmatic statements, with little explanation or argument. The opinions expressed are based on:

1. The published work of cardiologists who combine a scientific spirit with a wholly practical devotion to the art of medicine. Of these Thomas Lewis is, perhaps, the best exemplar.

2. Personal experience in the cardiovascular examination of a large number of normal young men called for army service.

3. Having given an intensive cardiovascular course in a medical officers' training camp. With some notable exceptions, mainly very recent graduates, the great majority of these officers considered a murmur to be synonymous with a valvular defect or a stenosed orifice.

This somewhat unhappy condition may be due to the abundance of articles in current literature on the instrumental examination of the heart and arteries, with a corresponding paucity of material relating to the physical examination and the proper diagnostic valuation of its results. On the other hand, it is quite possible that many of us, for various reasons, have not been as keen in the uptake of recent knowledge as the requirements of an exacting profession deserve. It is perhaps too much to expect that the traditional busy physician should find the time to keep up with the minutiae of the cardiologist. We bespeak for him less electrocardiograph, and more of the every day clinical side of cardiovascular diagnosis.

This condition of things has been characterized as unhappy. It deserves the adjective because of the number—and it must be large—of people who are unhappy because of the mistaken diagnosis of valvular heart disease, usually mitral insufficiency. It is mistaken because the diagnosis was based on the axiom, pounded into most of us who graduated fifteen or more years ago, that the systolic murmur at the apex spelled organic incompetence of the bicuspid valve.

MURMURS AND THEIR SIGNIFICANCE

The preface completed, dogmatic statements follow concerning the three chronological types of murmur and their significance—diastolic, presystolic and systolic.

Diastolic Murmurs.—The presence of an aortic diastolic murmur is, in the majority of cases, reliable evidence of aortic insufficiency. But even with this murmur it is not safe to make the diagnosis without the

* Read before the Annual Meeting of the American Climatological and Clinical Association, June 18, 1920, Philadelphia.

confirmatory evidence of a water-hammer pulse, throbbing carotids, capillary pulsation, and a pistol-shot sound in the femorals. This is true because the murmur may be due to the temporary stretching of the aortic ring as a result of extreme anemia; or be of exocardial, especially cardiorespiratory, origin. If, however, the murmur is distinct and is backed by a history of acute rheumatism in a young person, or syphilis in a man of 35 or over, it is right to give the patient the benefit of the doubt, and make the diagnosis on the murmur per se.

Presystolic Murmurs.—These are usually trustworthy. A rough crescendo presystolic bruit, internal to and a little above the apex; an abrupt first sound; a much accentuated pulmonary closure sound, and a small pulse, perhaps also a split second sound, means mitral stenosis. To make such a diagnosis without a definite murmur is unjustifiable. Even here there are possibilities of error. If aortic insufficiency is present, the presystolic murmur may be that which is named after the senior Flint. Moreover, the rapidly acting hearts of effort syndrome and exophthalmic goiter may readily be mistaken for those of mitral stenosis. To distinguish between them is at times extremely difficult.

Systolic Murmurs.—If the usually reliable diastolic and presystolic murmurs lend themselves to occasional misinterpretation, so, to a vastly greater extent, do the multitude of systolic murmurs.

Aortic systolic murmurs are diagnosed as aortic stenosis by many men, who forget that such murmurs are very common as a result of slight roughening of the valves of the root of the aorta, or are accidental or functional, often in connection with the anemic status. In reality, aortic stenosis is a rather rare lesion and requires for its recognition that the murmur should be loud, rough, and accompanied by a thrill; that the aortic closure sound be weak or absent; that left hypertrophy be present, and that the pulse should be of the "plateau" variety. With such signs, in an elderly person, a diagnosis of aortic stenosis is permissible, but not otherwise.

Pulmonary systolic murmurs, heard in what Balfour has called "the region of romance," are substantially negligible in the run of cases. Only rarely, and usually as a sign of congenital malformation, are they indicative of organic disease. In such cases the murmur is so loud and so widely diffused that its exceptional character is immediately recognized.

Apical systolic murmurs constitute the greatest stumbling block in the way of a correct diagnosis, for the reasons already stated. Very commonly they are of cardiorespiratory production; they vary in intensity and quality from time to time, and with change of posture or the phase of respiration. Some are frictional in character, arising in the pericardium as a result of an old inflammation. Others are caused by roughening of the valve-cusps. Finally, the murmur may be, and often is, that of a relative insufficiency due to a relaxed mitral ring.

Many necropsies have shown that no matter what the character of the murmur—soft, musical, harsh; or the direction and extent of its audibility—to the left, at the angle of the scapula, the mitral ring and valve may be normal. Per contra, the valve may be distorted or the orifice dilated, without a murmur intra vitam.

The consensus among those best qualified to judge is tending strongly toward the great probability that uncomplicated (primary) mitral insufficiency should be classed among the comparatively infrequent valve lesions. It may occur as a distinctly secondary result of the pathologic changes that result in mitral stenosis, or the cardiac hypertrophy and dilatation that develop in the course of cardiovascular-renal disease, exophthalmic goiter or syphilitic aortic lesions.

It is, I believe, safe to say that primary organic mitral insufficiency should in no case be diagnosed unless in addition to the murmur there is evidence of cardiac hypertrophy, and, preferably, a definite history of rheumatic fever. In view of the fact that about 90 per cent. of apical systolic murmurs are not due to mitral insufficiency, this rule does not appear to exceed legitimate diagnostic requirements.

226 Gates Avenue.

Clinical Notes, Suggestions, and New Instruments

AN APPARATUS FOR CONTROLLING HEMORRHAGE FROM THE SCALP

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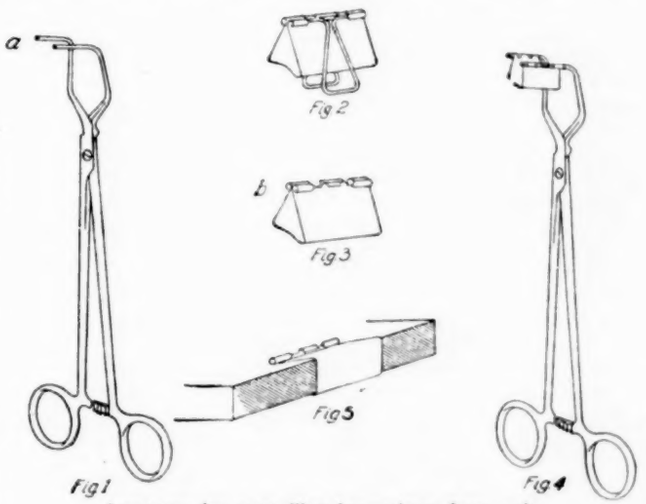
In any operation in which it is necessary to incise the scalp, many hemostats must be used in order to control the bleeding. Even if the heretofore devised special scalp hemostats are used, quite a number must be applied. The result is that the operative field is crowded with instruments that are continually getting in the way and impeding the progress of the operation.



Apparatus for controlling hemorrhage from scalp.

The object of the apparatus described herewith is to produce hemostasis in a scalp incision, doing away with all of the more bulky instruments ordinarily used.

The apparatus consists of a clip-holder 8 inches long (Fig. 1) and several clips (Fig. 3). It will be noted that when the handles of the clip-holder are compressed, the points (*a*) are spread. The clips used are ordinary No. 2 L. E. B. binder-clips, 20 mm. long by 12 mm. wide by 10 mm. high (Fig. 2) with the handles removed (Fig. 3). A clip is slipped on the clip-holder, the prongs (*a*) being placed through the small tubes along the edge of the clip (*b*). One prong is made one-sixteenth inch longer than the other to facilitate this "loading." When the handles of the clip-holder are compressed, the edges of the clip are spread apart, as shown in Figure 4. With the clip spread apart it is slipped over the cut edge of the scalp at a bleeding point, the handles of the clip-holder are released, and the entire clip-holder is removed by withdrawing the prongs (*a*) from the small tubes (*b*), leaving the clip firmly attached to the scalp (Fig. 5). When the time

comes to suture the scalp, the clips can be easily removed by grasping them between the fingers and making gentle traction on them. It has been found that although they grasp the scalp tightly enough to control bleeding completely they do not injure it in any way.

In order to insure the quickest service from this apparatus, it is advisable to have two or three clip-holders and about one dozen clips. In this way, while the operator is applying one clip the nurse may be "reloading" another clip-holder. The number of clips applied depends, of course, on the extent of the incision and the amount of bleeding. Eight clips have been used successfully in a horseshoe incision for a subtemporal decompression, but more can be used if the procedure demands. It seems probable that the maximum number needed for any operation would be twelve and, since the same clips may be used again and again, this is a sufficient number to complete the apparatus. Both the clip-holder and the clips may be sterilized by boiling.

ETIOLOGY OF DEVIATIONS OF THE NASAL SEPTUM: ANATOMIC THEORY

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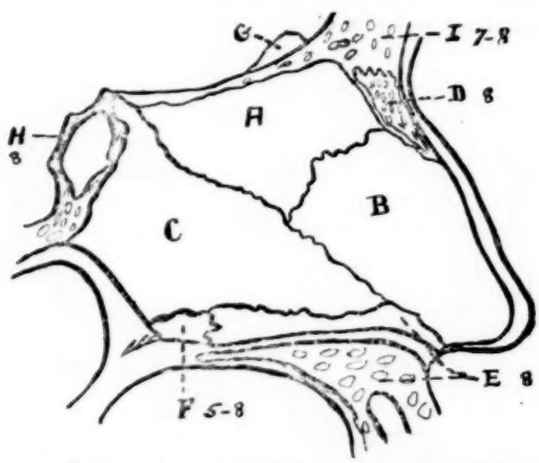
The various theories attempting to explain the causation of septal deformities—as the Talbolt theory of stigmas of degeneracy, the Trendelenburg and Freeman theory of persistent high arch of the palate crowding the vomer, and the Bosworth theory of traumatism—are not altogether acceptable or, in the great majority of instances, satisfactory. The rhinologist must carefully scrutinize to find any stigmas. Most of the patients have no high palatal arch. Of course, in the great number of cases there is no history whatever of traumatism. There must be some clearer, more universal and more plausible explanation of the causation of this anatomic defect.



A, perpendicular plate of ethmoid: ossification begins the forty-eighth week; *B*, triangular cartilage: remains soft throughout life; *C*, vomer: primitively consists of two very thin lamellae or plates with cartilage in between, which become partly fused about the third month of fetal life, and completely united to form a medial plate after puberty; ossification begins the eighth week; *D*, nasal bone: ossification begins the eighth week; *E*, superior maxillary bone: ossification begins the eighth week; *F*, palate bone: ossification begins from the fifth to the eighth week; *G*, crista galli: ossification begins the forty-eighth week; *H*, sphenoid bone: ossification, eighth week; *I*, frontal bone: ossification begins the eighth week. The numbers indicate the week of fetal life when ossification begins.

I suggest the following theory: The nasal septum divides the bony structure into two compartments. It is surrounded by hard, unyielding, bony tissues which begin to ossify from the first to the eighth week of gestation. The septum, composed of the vomer, perpendicular plate of the ethmoid and triangular cartilage, ossifies so far as the bony portion is concerned, from the second year to puberty. Of course, the cartilage remains soft throughout life.

It is easily conceived, therefore, that the surrounding bony structures, ossifying at a much earlier period than the bony septum, will cause the septal constituents to deflect or deviate in order to permit it to occupy its proper space. It is as if one should attempt to insert a paper perpendicularly into a box of smaller dimensions. The paper would, of course, assume the form of an S or bend out with concavo-convex configuration.

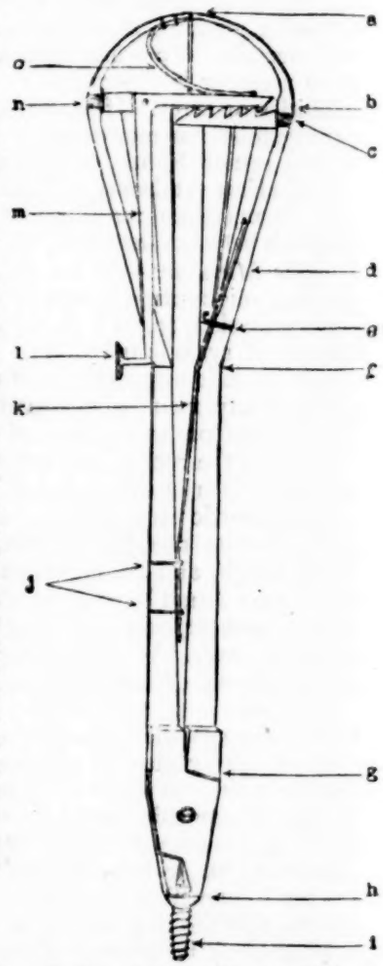
The accompanying diagram is self-explanatory.

BONE-SCREW AND BONE-SCREW SCREW-DRIVER

EDWARD A. CAYO, M.D., SAN ANTONIO, TEXAS

This bone-screw is, in structure, the same as the ordinary screw used in bone surgery, with the difference that in place of the groove in the head of the ordinary screw there is a projection on the head of the bone-screw. This projection extends right across the screw-head: it is 3/32 inch high, 1/32 inch in thickness on top, and it is beveled to a thickness of 3/32 inch at its base, all corners being slightly rounded.

From a physiologic standpoint, the bone-screw is preferable to the ordinary screw with the grooved head, as the tissues can readily grow about the projection and form tissue with healthy circulation; whereas, with the grooved head, the tissues form a pedicle to fill the groove, this pedicle, of course, having poor circulation and therefore being tissue of low resistance. Wherever there is tissue enough to bury the plate so that the screw does not come in contact with the skin, the projection on the head will not make any difference. Wherever this screw is contraindicated, it is quite obvious that a plate will give trouble too.



Section of the handle and shanks of screw-driver. The beveled jaws are shown gripping the beveled projection on the head of the screw, holding the latter securely in position.

BONE-SCREW SCREW-DRIVER

The measurements of the instrument are: full length, *a-h*, 9 inches; diameter at *b*, 2 inches; diameter at *f*, 11/16 inch. The part of the handle above line *b*, when the shanks are closed, forms a complete half-sphere, the outer surface of which is slightly grooved stellately. Form *b* to *f* the handle is tapered cylindrically. The shanks meet at line *g*, and from this point the space between them gradually increases up to line *f*, where it is 5/16 inch: from *f* to dome-line *b*, the space between the shanks is 5/16 inch. Between lines *b* and *f*, each half of the handle has two additional openings, as shown in the illustration.

There are two springs, clasp-spring *o*, and opening-spring *k*. The latter is notched for retention-pin *e*, which limits the spread of the shanks and also the opening of the jaws.

The illustration shows the beveled jaws of the screw-driver gripping the beveled projection on the head of the screw and holding the latter securely in position. When the screw is in position in the jaws, the shanks of the handle are sprung so

as to close the dome: when empty, the jaws close to contact.

From a mechanical standpoint the bone-screw and bone-screw screw-driver, as contrasted with the ordinary screw and screw-driver, which are mechanical a rd surgical incompatibilities, together form a mechanical combination with which a surgeon can apply or remove the bone-screw with the minimum loss of time.

The screw and screw-driver in surgical use up to the present time have ever been a source of aggravation to the surgeon, and the chief factor in prolonging bone-plating operations.

The bone-screw screw-driver also makes a serviceable needle-holder.

Moore Building.

USE OF SILVER NITRATE OINTMENT IN THE TREATMENT OF VULVOVAGINITIS IN CHILDREN *

GEORGE GELLHORN, M.D., ST. LOUIS, MO.

It would require considerable space to set down all the various methods and medicaments which have been proposed for the therapy of gonorrheal vulvovaginitis in children. Their very multiplicity argues against them, and every clinician realizes only too well how far we are still removed from a uniformly reliable mode of treatment. The method most widely in use is instillation, into the vagina, of a watery solution of a silver salt, such as silver nitrate, protargol, argyrol or the like. The one great drawback of this procedure is that the bactericidal agent remains in contact with the inflamed mucosa only a short time, and that it has no opportunity to penetrate into the crevices of the vagina.

This disadvantage is overcome by the method which I have been using for the last two or three years, the publication of which has been postponed until favorable reports had been received from other observers.

The drug employed is silver nitrate in the form of a 1 per cent. ointment (silver nitrate, 1.0; lanolin and white petrolatum, of each, 50.0). This ointment is injected into the vagina through an ordinary glass syringe with a slender nozzle to which a piece of soft rubber catheter or tubing, about 3 inches long, is attached. The tubing is changed for each patient. It can be introduced without pain into the vagina of even a very small child, and is slowly pushed inward the entire length of the vagina. The latter, then, is very slowly filled to capacity with the silver salve. The excess of salve which oozes back through the hymenal opening is not wiped off, as it is meant to cover and protect the irritated vulva and its surroundings.

The treatment is given once a day without any additional douching. Every seventh or eighth day, after a day of rest, a smear is examined, and the injections are continued if gonococci are present. If they are absent, smears are made at intervals of three days without any further treatment until at least three have been found negative. It is then advisable to send the child home but insist on a final examination in two weeks. Occasionally, provocative silver nitrate injections are made and smears examined subsequently.

As a result of this treatment, the discharge and the outer excoriations, as a rule, disappear very quickly. In some cases, a scant, watery discharge persists for a short while which may harbor gonococci. But even when there is no discharge at all, it is necessary to scrape off some vaginal secretion by means of a very thin, dull spoon lest the presence of gonococci be overlooked. The average duration of treatment is from three to four weeks. Case 1 is typical:

CASE 1 (No. 1312, 1920).—A colored child, aged 3 years, was admitted to the hospital, Aug. 8, 1920, with a profuse vaginal discharge which contained gonococci in abundance. She was first treated on the pediatric service with daily injections of a 25 per cent. solution of argyrol, but after three weeks of this treatment, the discharge was still profuse and the little patient complained of pain in the vagina. Gonococci were still present. September 1, she was transferred to the gynecologic service and received the silver nitrate ointment treatment as outlined above. On the ninth day, the discharge was still profuse and contained gonococci. On the seventeenth day, the discharge was diminished yet positive as to gonococci. On the twenty-fourth day the discharge had ceased; no gonococci were found. Treatment was then discontinued, but smears were examined every third day for almost three weeks, always with the same negative result.

Occasionally a cure is effected even more promptly, as in Case 2:

CASE 2 (No. 1618, 1920).—A colored child, aged 4 years, was admitted with a gonorrheal vulvovaginitis, Sept. 15, 1920. Treatment with silver nitrate ointment was instituted, September 17. Eight days later, the discharge was greatly diminished, but still contained gonococci. After another six days, less than two weeks after the beginning of treatment, there was no discharge, nor were there any gonococci in the smear. After a rest of four days, the vagina was swabbed with a 5 per cent. solution of silver nitrate. This caused a slight, thin secretion which proved to be free from gonococci. Three more smears were examined at intervals of three days, and the patient was discharged completely cured four weeks after admission.

When there is a return of gonococci in the smears after a temporary absence, or when the discharge cannot be freed at any time from the microbes, one must assume that, contrary to the usual behavior of the disease in childhood, the gonococci have invaded the cervical canal. Instances of such an ascending gonorrhea with the formation of pyosalpinx or pelvic abscess are well known though, fortunately, they are not frequent.

As may be inferred from the foregoing description, the treatment is exceedingly simple and absolutely painless, and it may be entrusted to nurses or mothers. In the latter case, however, some supervision is advisable. It may merely be a coincidence; yet, in two recurrences among my patients and in one in the practice of a friend of mine, the mothers had carried out the treatment.

It is desirable to prescribe only small quantities of the ointment because silver nitrate is quickly decomposed and thereby becomes either inert or irritating. Discolored preparations should be discarded.

The 1 per cent. silver nitrate salve has been used in my service at the City Hospital on children ranging in age from 9 months to 12 years. Under the older forms of treatment, these children had been confined in the wards for several months; the older ones were kept out of school and exposed to all the harmful influences that emanate from the adult inmates of venereal wards in public hospitals. Moreover, the very chronicity of the affection caused the interest of interns and nurses to wane, and this still further prolonged the stay of the little patients. Happily, this condition no longer prevails. Results are obtained promptly, and the number of weeks in which the children are evacuated is less than the number of months that was formerly required.

It may be added that in adults a 2 per cent. silver nitrate ointment has been found highly serviceable in the acute stage of gonorrhea. It is either injected, as in children, or introduced by means of a soft tampon. It greatly ameliorates and shortens the initial phase of the disease, during which we have heretofore been forced to inactivity, and seems to prevent the extension of the infection into the vulvovaginal glands.

Metropolitan Building.

The Microscope and the Development of Histology.—There is room for difference of opinion as to the impulses from external sources which have had the most far-reaching effects on medicine, but I would name four as of exceptional importance. They are the invention of the compound microscope, the development of chemistry, the acceptance of the doctrine of evolution, and the discovery of the relation of microorganisms to disease. The microscope was invented in Holland early in the seventeenth century, but its possibilities as an aid to anatomy were not at first grasped, and it was not till after Harvey's death that Malpighi actually saw the capillaries and the contrary direction of the blood flow in arteries and veins. The rise of histology from that time forward has transformed our ideas of the structure of the body, and with each improvement in the microscope our horizon has widened. We have passed from the organ to the units of which it is built up, and Virchow's "Cellular Pathology" marks an epoch in medicine.—F. W. Andrewes, *Lancet*, Oct. 23, 1920.

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* From the Gynecologic Service of Washington University Medical School at the City Hospital.

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SATURDAY, DECEMBER 11, 1920

A CONTRAST OF CHEMOTHERAPY AND SEROTHERAPY

Analogy has its dangers as well as its advantages in medicine. This is particularly true as it pertains to therapy. Merely because two diseases are characterized by some common symptom, such as fever or edema or hypersensitiveness, for example, one is not justified in concluding that a course of treatment or a palliative procedure successful in one type will be equally valuable in another. Efficient therapy deals with etiologic agencies as well as with symptoms. Widely different causative organisms may give rise to identical pathologic reactions or states. Different procedures may consequently be needed to overcome the similar harmful effects.

The foregoing reflections have been called forth by a consideration of certain current tendencies in so-called chemotherapy. Stimulated by the success of the various arsenicals, beginning with arsphenamin, in the attack on some of the diseases of spirochetal and protozoan etiology, there has naturally been a tendency to attempt to extend the field of usefulness of the newer classes of chemical compounds to combat other infections of a related character. Of late the leptospira group of organisms, so closely related to the true spirochetes, has aroused particular attention in this respect. The organism of infectious jaundice, *Leptospira icterohaemorrhagiae*, to which reference has repeatedly been made in The Journal, has been shown definitely by Inada, Ido and Noguchi, among the pioneer investigators of infection with this agent, not to yield to chemotherapy with arsphenamin and neo-arsphenamin. Incidentally this fact may be taken, if opinions still differ, as further support for the opinion that the leptospira group of organisms forms a type of its own, and differs from the other pathogenic spirochetal parasites.

The indication of this lack of definite therapeutic value for the familiar arsenicals in the case of the leptospira group has been further substantiated by Noguchi.[1] He has directed his efforts toward the experimental infection of guinea-pigs with *Leptospira icteroides* which he has derived from certain cases of yellow fever. From his attempts at treatment with arsphenamin and neo-arsphenamin he concludes that it is extremely doubtful whether the severity of the infection was mitigated. Indeed, he speaks of the "inefficacy or dubious therapeutic value" of the drugs mentioned against the *icteroides* infection, although they are highly poisonous for *Leptospira* in vitro. On the other hand, anti-*icteroides* immune horse serum protected guinea-pigs from an infection with at least 5,000 minimal lethal doses of *Leptospira icteroides*. We can readily agree with Noguchi, therefore, when he points out that the contrast between chemotherapy, as carried out with the arsenicals, and serotherapy, as demonstrated with immune serum, may be of great practical importance. It would be most unfortunate if current enthusiasm for novel procedures were to lead to oblivion of older tested principles. Supposed analogies often fail.

1. Noguchi, Hideyo: Etiology of Yellow Fever, XII, Chemotherapy Versus Serotherapy in Experimental Infection with Leptospira Icteroides, J. Exper. Med. **32**: 381 (Oct.) 1920.

THE CONTROL OF THE PYLORUS

Physiologists of long ago ascribed to the pylorus a unique function—"a peculiar tact which enables it to select from the contents of the stomach what is proper to pass through, while it rejects the remainder." In recent years, vague explanations of this sort, as well as the essentially mechanical hypotheses, have given way to the theory of the "acid control" of the pyloric sphincter, as elaborated by Cannon[1] of Harvard. According to this chemical explanation, the presence of acid within the stomach favors or produces a relaxation of the pyloric sphincter; while in the duodenum, on the contrary, it causes a closing contraction of the sphincter. In this way, as is now commonly taught in textbooks,[2] it may be imagined that after each ejection of acid chyme the sphincter is kept closed until the acid material in the duodenum is neutralized. Thus, automatically a mechanism is provided by means of which the duodenum is charged at intervals and at such times as it is prepared to receive and neutralize a new quantity of the chyme.

The chemical theory of acid control of the pyloric sphincter has been the outcome of extensive experiments on animals. It has never been denied by its proponent that other factors than the gastric acidity may alter the nature of the control. There is no doubt that the normal quiescent sphincter is in a state of contraction. Certain facts, such as the emptying of the stomach in achylia gastrica, have never been suitably explained by Cannon's theory, nor is it clear why water may leave the stomach so rapidly before intragastric acidity develops to any considerable extent. It has been suggested that perhaps in man other factors exert

1. Cannon, W. B.: The Acid Control of the Pylorus, Am. J. Physiol. **20**: 284, 1907.

2. Howell, W. H.: Textbook of Physiology, Philadelphia, W. B. Saunders Company, 1919, p. 728. Macleod, J. J. R.: Physiology and Biochemistry in Modern Medicine, St. Louis, C. V. Mosby Company, 1918, p. 457.

the principal control on the pyloric sphincter. Thus, Cole [3] has observed by the roentgen-ray method in human subjects that a meal of mixed foods and fluids begins to leave the stomach immediately after ingestion. He has concluded that the pylorus opens partly at each gastric "systole," and that "during the stage of 'diastole' when the gastric pressure is diminished, the sphincter may be closed to prevent the chyme from falling into the stomach." The opening of the pylorus is thus correlated with the passage of peristaltic waves and with an increased tonicity of the stomach.

In Carlson's [4] laboratory, evidence has likewise been obtained on man as well as animals to show that there is a correlation between marked motor activity of the stomach (either as changes in tonus or as peristalses) and an inhibition in tone of the pyloric sphincter. Fluoroscopic examination of the stomach of man, while simultaneously recording graphically the motor activity of the stomach, shows that the pylorus opens for the ejection of chyme with arrival at the pylorus of powerful advancing rings of constriction, aided possibly by a general increase in tone of the stomach musculature as a whole. In the cases observed there was certainly a greater relation between the muscular activity and the opening of the pylorus than between the latter and the reaction of the intragastric contents.

If further evidence were needed that factors other than the presence of free acid in the stomach near the pyloric sphincter are related to an opening of that sphincter, they could be found in the latest records from the Peter Bent Brigham Hospital in Boston. The observations, likewise fluoroscopic, made there by McClure, Reynolds and Schwartz [5] on the functioning of the sphincter have shown that finely divided carbohydrate, protein or fatty foods begin to leave the normal human stomach within a comparatively few minutes after their initial ingestion. Under normal conditions the human pyloric sphincter opens regularly at the approach of each antral peristaltic wave, allows chyme to pass through into the duodenum during an appreciable length of time, and closes when the antral peristaltic wave has spent itself. The introduction of fortieth normal, twentieth normal or tenth normal hydrochloric acid solutions into the first, second or third portions of the normal human duodenum either produced no effect on the opening of the pyloric sphincter as observed by means of the fluoroscope, or produced effects which were interpreted as the result of abnormal irritation of the duodenal mucosa. Furthermore, neutralization of the contents of the first portion of the duodenum did not prevent the closing of the pyloric sphincter. It is on the basis of such facts that the Boston observers also conclude that acid is not the principal factor controlling the opening and closure of the pyloric sphincter in man. Doubtless the importance of the chemical control has been overemphasized in recent years.

3. Cole, L. G.: Am. J. Physiol. **43**: 618, 1917.
4. Luckhardt, A. B.; Phillips, H. T., and Carlson, A. J.: Contributions to the Physiology of the Stomach, LI, The Control of the Pylorus, Am. J. Physiol. **50**: 57 (Oct.) 1919.
5. McClure, C. W.; Reynolds, L., and Schwartz, C. O.: On the Behavior of the Pyloric Sphincter in Normal Man, Arch. Int. Med. **26**: 410 (Oct.) 1920.

THE CALCIUM REQUIREMENT OF MAN

For an enormous number of people living in the civilized parts of the world, the days of a surfeit of food are, for a time at least, past. Even in regions of comparative abundance, the higher cost of living has enforced economies in the dietary as well as in other directions bearing on daily life. The purchaser of food has become more discriminating, so that the variety as well as the quantity procured for his table are tending toward restriction. With the concentration of attention on foods of relative cheapness, there is a greater likelihood of a lack of some nutrient factor that is ordinarily represented only in small quantity in the usual mixed diet, than of a serious deficiency in such an essential as protein and in the total calorific needs of the body. Lack of food fuel speedily leads to loss of weight and decline. The law of the conservation of energy holds even in times of stress.

In periods of food retrenchment, therefore, it becomes advisable to direct attention to the more subtle dangers represented by the possible need of the "lesser essentials" in the diet. One of these is calcium. Lime salts are by no means universally abundant in natural foods. Some, like meats, cereals, sugars and fats, are decidedly poor in the element calcium. The low content of calcium has been described as one of the limiting factors in a large proportion of our staple foods.

Students of nutrition are now well informed as to the energy requirements of man, in different degrees of activity at different ages, in health and in disease. The problem of the protein minimum has become essentially a debate as to the optimum of protein of suitable physiologic quality. But how about the requirement of calcium, which necessarily occupies a prominent place in the inorganic food supply? In order to answer this, Professor Sherman [1] of Columbia University has collected a large number of dependable data taken from observations on the maintenance nutrition of adult man. In a similar way the protein requirement had been shown to average 45 gm. a day for a person of 70 kg.; the phosphorus need is estimated at 0.9 gm. a day; and now the new data for calcium requirement give a mean result of 0.45 gm. The records are sufficiently numerous so that the statements are "presumably as dependable as the accepted statement of average composition of even the most familiar of our staple foods." Expressed somewhat differently, the findings lead to the conclusion that a food supply, in order to furnish these essential nutrients in relative proportions corresponding to the needs of the body, should contain at least 1 gm. of calcium for every 100 gm. of protein.

1. Sherman, H. C.: Calcium Requirement of Maintenance in Man, J. Biol. Chem. **44**: 21 (Oct.) 1920.

There are indications that in our meat and cereal eating, milk neglecting nation, many more diets are deficient in calcium than in protein. Sherman notes that in the large majority of American food supplies of families and larger groups, as indicated by dietary studies made before the war by the United States Department of Agriculture and the New York Association for Improving the Condition of the Poor, the ratio of 1 gm. of calcium for each 100 gm. of protein does not hold. It does not follow, he adds, that the calcium content was necessarily too low in the majority of dietaries, but rather that the food supply furnished a much more liberal surplus of protein than of calcium. When the results of 224 presumably typical American dietary studies were calculated to the usual basis of nutrients for one man per day, the average protein content was found to be 106 gm., or 140 per cent. above the indicated maintenance requirement of 44 gm., while the average calcium content was 0.74 gm., or 64 per cent. above the estimated actual minimum of 0.45 gm.

The prevention of a calcium deficit is not difficult or expensive. It will not be necessary to requisition the help of the "patent medicine" manufacturer. Salts of lime might be incorporated with our common table salt, as Loew and others have proposed. Sherman's advice seems preferable when he remarks that it would probably be more difficult to persuade people generally to make such additions than to teach a more liberal use of foods naturally rich in calcium, while the latter course has the added advantage that the foods whose larger use would be invoked to increase the calcium intake (notably milk in its various forms) are important sources of proteins of high nutritive efficiency and of the fat-soluble vitamin as well.

WHAT IS A NORMAL BLOOD PRESSURE?

Nowadays, aside from the estimation of pulse rate and the determination of body temperature, few measurements are made more frequently than is the record of blood pressure. Obviously, then, it becomes of great importance in clinical medicine to be able to evaluate the data thus obtained with respect to the condition of the circulatory organs. The observer cannot remain content with mere data; he inevitably asks himself what the norms of health are and what deviations mark the borderline between the normal and the pathologic. In other words, prognosis and intelligent advice to patients may depend in no small measure on a correct understanding of manometric observations of blood pressure. If it is true, as clinicians of experience have ventured to assert, that fifty out of a hundred men will die of cardiovascular disease, a condition in which hypertension plays a conspicuous part, the study of its genesis must become one of the foremost efforts of preventive medicine; and in this investigation the statistics of blood pressure are bound to be significant.

Blood pressure varies with age as well as with other factors that enter into human life. Various "rules" have been proposed for taking into account the physiologic deviations that affect the tension in the blood vessels. Thus, it has been asserted that the normal pressure for any age is roughly 100 mm. of mercury plus a figure represented by the age in question. The "norms" seem to be changing as physicians are acquiring an increased familiarity with the subject. In 1913, a capable observer placed the upper limit of normal systolic pressure at between 150 and 160 mm.; within two years he revised his estimate so as to regard a pressure of more than 135 mm. up to middle life as pathologic hypertension. What shall we regard as a correct dictum for 1920?

It might seem like a relatively simple task to establish physiologic values for blood pressure as they have been satisfactorily ascertained with respect to body temperature, for instance. Large numbers of presumably healthy persons of different ages could be examined, as indeed they have been for a diversity of purposes. Numerous life insurance examination data, figures from army recruits, measurements of candidates for athletics, etc., are available. Careful consideration, however, points to the conclusion that most of such groups are likely to represent special categories of persons, and thereby would tend to make deductions somewhat uncertain in their broadest application. Instead of a record of "selected applicants," some fairer method of sampling mankind would be more accurate.

An ideal way, Alvarez [1] recently wrote, would be to examine every tenth individual passing a certain point on a busy street. Different strata of society might be sampled by choosing streets in different parts of the city and also by choosing different cities. Unfortunately, such methods are not practicable at present. The next best thing probably would be to study the young people gathered together in the public schools and colleges. Particularly in state universities where tuition is free it would seem that the student body should represent a fair sampling from the more intelligent part of the community. Alvarez has had the exceptional opportunity to study a statistical analysis of the blood pressures of several thousands of freshmen of both sexes at the University of California. From these it appears that the blood pressure in young women is much more uniform than in men. The range for the women was practically from 85 to 155; for the men it was from 90 to 175. Fifty per cent. of the women's readings fell between 105 and 119 mm.; 50 per cent. of the men's fell between 116.5 and 136.5 mm. High blood pressure appears earlier and to a greater degree in young men than in young women.

Such are the figures. Ranges of data may include the abnormal as well as the healthy normal. A math-

1. Alvarez, W. C.: Blood Pressure in University Freshmen and Office Patients, Arch. Int. Med. **26**: 381 (Oct.) 1920.

ematical interpretation of the valuable California data suggests that pressures over 130 mm. for the women and over 140 mm. for the men are abnormal. The arithmetical mean for women between 16 and 40 was 115 mm.; for men, 126.5 mm. From clinical experience, Alvarez concludes that pressures over 127 in women, and over 130 in young men, are indicative of a hypertensive diathesis which is associated with many typical symptoms and findings.

It may be and presumably will be objected at once that such statements contradict experience—that many persons outlive the unfavorable prognosis that is based on such low values for the borderline of perfect health. However this may be, we must be prepared to examine dependable data for any evidence of early deterioration of present-day man, wherever it may lead us. Abnormality need not be ignored because it is not always synonymous with death. Real facts are often worth following, wherever they may lead.

Current Comment

THE SINCEREST FLATTERY

Some of our Spanish confrères are liberal in copying from THE JOURNAL without giving credit. The most conspicuous recent instance is the *Estudios Médicos* (Murcia) for November. Of the six "original articles" in that issue, five are reproduced in full from the Spanish Edition of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION without credit, except a one-line statement in extremely small type, appearing under the table of contents. The *Estudios Médicos* is elaborately prepared, beautifully printed on excellent paper, the type is large, especially for the headings and center heads, and it has wide margins, giving the impression of enterprise. The editor is to be congratulated on the excellent material appearing in this particular issue.

THE SPIRITUAL ADVANCEMENT OF THE PHYSICIAN

It is evident that general educational and cultural advancement has occurred among physicians within the last few decades. The frontier atmosphere and the crude manners of pioneer days are largely giving way to the finer type and character of a more civilized state. This advancement may be traced definitely to the broad fundamental education now being required of medical students, which gives them the fine discriminating sense of the cultured man and enables them to measure and evaluate the factors that go to make up human life. Of course, such extension of medical education means also better professional equipment. In urging cultural advancement it is not meant that physicians should become artists, musicians or poets, or even perhaps experts in the realm of sciences indirectly related to medicine. Although the physician need not have an intimate knowledge of all those matters of higher education comprehended under the term "humanities," he should nevertheless have some acquaintance with these subjects. In every community today, one finds physicians who exhibit cultivated taste. While acknowledging first obedience to the vocation of healing the sick, they find in the by-paths of artistic activity not merely amusement and recreation, but also opportunity for contributing to community betterment.

THE FLY IN COURT

The housefly is a vicious cuss:
He has no fear or shame;
He has no business in the soup,
But he gets there just the same.

To a certain summer hotel in the state of Maine there came one day a high-school teacher vacationing with his wife. He had reserved rooms for a two weeks' stay, but after four days' occupancy, he left the hotel, and his excuse was the number of flies in the dining room. All this is covered in a report of the Supreme Judicial Court of Maine, to which the case finally was appealed, for the hotel-keeper sued for fulfilment of the contract. The supreme court ruled in favor of the teacher, and in rendering the decision the judge presented a legal indictment of the fly, calling for at least capital punishment as a logical treatment for the miscreant. We refer our readers to the report of this case,[1] because the indictment of the fly by the judge is unique. The fly has had his legal chance and has lost. The penalty against this outlaw is that he be swatted until dead.

SENSITIZATION OF ORGANS TO LIGHT

The phenomena of photodynamic sensitization of animals through the introduction of fluorescent substances into them were first demonstrated twenty years ago by Tappeiner and his co-workers in Munich. They gave promise of helping to explain many of the still obscure biologic and pathologic effects that seem to be attributable to the action of light on the body. Not only do chemical compounds like fluorescein and eosin sensitize suitable animals, like white mice, so that they are severely affected by the exposure to intense light, whereas they remain unharmed if kept in the dark: similar results are obtainable with more distinctly biologic products. Among these are chlorophyl and the hemoglobin derivative of hematoporphyrin. Meyer-Betz[2] so sensitized himself by injections of the latter that exposure to the sun caused severe skin reactions for several weeks. The details of the reaction have never been adequately investigated. It is of peculiar interest, therefore, to learn from more recent studies of Amsler and Pick[3] at Vienna that isolated organs like the heart can be made to stop functioning when exposed to light during perfusion with a nutrient solution that contains a potent fluorescent substance. In the absence of light, no interference with the orderly beat of the surviving heart is noticed. The effect of

1. A Supreme Court's Pronouncement Against the Fly, this issue, p. 1669.
2. Meyer-Betz: Deutsch. Arch. f. klin. Med. **112**: 476, 1913.
3. Amsler, C., and Pick, E. P.: Eine Analyse der biologischen Wirkung der Fluoreszenzstrahlen, Wien. klin. Wchnschr. **30**, No. 10, 1917.

illumination after sensitization with minute doses of eosin, for example, is to produce a sort of diastolic shock in which the nervous rather than the muscular parts of the organ are injured. Such phenomena urgently call for detailed investigation in many directions. They may help to explain hitherto obscure manifestations under conditions in which sensitizing compounds like the blood pigments accidentally circulate in the body. The still highly indefinite heliotherapy can likewise well afford to take notice of these new opportunities for investigation along promising lines.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

CALIFORNIA

Tuberculosis Clinic Established.—The Associated Charities of Redlands has opened a tuberculosis clinic in the northern section of the city. Tentative plans provide for opening the clinic every Saturday.

Personal.—Dr. Franklin R. Nuzum has been appointed director of medical service of the Santa Barbara Cottage Hospital, including the memorial metabolic clinic and laboratories.——Dr. Adelaide Brown, San Francisco, has been appointed lecturer on child hygiene in the division of medicine of Stanford University Medical School.——Dr. Lester C. Scully has been appointed quarantine physician of the port of San Francisco.

Hospital Notes.—The board of supervisors of Yolo County have decided to build a new county hospital to replace the present building which is considered obsolete and inadequate. The new structure will cost $100,000, provision for which has been made in the tax levy for 1920-1921. The hospital will be on the same tract as the present building, about 4 miles from Woodland.——The new Woodland Sanatorium, constructed at a cost of $125,000, is virtually complete. The additions to the old sanatorium almost treble the capacity, providing accommodations for approximately 100 patients.

Regulations Governing Ripe Olives.—The California State Board of Health recently adopted resolutions regulating the packing processes and the marketing of ripe olives. Hereafter ripe olives must be subjected to a temperature of 240 F. for a period of forty minutes and rigid regulations will be enforced regulating the sanitation of the equipment employed in all processes. The regulations are based on the results of the investigations conducted by a board consisting of Dr. Ernest C. Dickson, Stanford University, Drs. Karl F. Meyer and W. V. Cruess of the University of California, and Dr. Jacob C. Geiger, U. S. P. H. S.

GEORGIA

Personal.—Dr. Hugo Robinson, Albany, has been elected district health commissioner of Dougherty County to fill the unexpired term of Dr. Horace C. Robles, deceased.

Hospital Fire.—The Sanatorium of the Seventh Day Adventists at Reeves, 5 miles from Calhoun, sustained damages estimated at $30,000 by a fire, November 14. The patients in the building were removed without casualty.

ILLINOIS

Tuberculosis Societies Meet.—At the eleventh annual meeting of the Illinois Tuberculosis Association, held at Springfield, the following officers were elected: president, Dr. George T. Palmer, Springfield (reelected); vice presidents, G. L. Avery, Peoria, E. C. Searles, Chicago, Dr. Herbert C. Jones, Decatur, and Moss Maxey, Mount Vernon; secretary, J. W. Becker, Jerseyville, and treasurer, Louis G. Coleman, Springfield.——The Winnebago County Tuberculosis Society at its annual meeting, held at Rockford, November 15, elected the following officers for the ensuing year: president, Dr. Anna Weld; vice presidents, Dr. M. R. Harned and Miss Mabel Nelson; secretary, Miss Prudence Ross, and treasurer, Miss Mabel Beattie.

Tuberculosis School Reopened.—The school for diagnosis and treatment of tuberculosis for acting assistant surgeons and local examiners of the U. S. Public Health Service of Michigan, Wisconsin and Illinois will be resumed at Springfield, December 13. The courses will be directed by Dr. George Thomas Palmer, assisted by Drs. Walter H. Watterson, Chicago; Orville W. McMichael, Chicago; Roswell T. Pettit, Ottawa; Herman H. Cole, Springfield; Fred S. O'Hara, Springfield, and Thomas G. Hull. It is planned to conduct courses every six weeks and the second course will be initiated January 24.

Chicago

Dietitians Seek Interesting Lectures.—The Chicago Dietitians' Association seeks the opportunity to attend meetings with lectures, papers or discussions on topics of special interest to its members. Information regarding contemplated lectures may be communicated to Miss Rose Straka, Presbyterian Hospital, Congress and Wood streets.

Illegal Practitioner Fined.—H. C. Selby of 5158 South Wabash Avenue, Chicago, was arrested by the Department of Registration and Education of Illinois charged with a violation of the medical practice act, for which he was fined $25 and costs, November 30. A second count was dismissed on his promise to discontinue the circulation of advertising literature.

Meeting of Institute of Medicine.—At the annual meeting of the Institute of Medicine of Chicago, December 7, Dr. Thomas L. Gilmer delivered the presidential address on "The Relation of Diseases of the Teeth to Systemic Diseases" and Dr. Charles B. Reed spoke on "The Literary Effect of Hunger." Drs. D. J. Davis, Samuel J. Walker, J. G. Wilson and Arthur I. Kendall were elected governors.

Physicians Awarded Foreign Honor.—At a meeting of the north side branch of the Chicago Medical Society, held Thursday night, December 2, the cross of an officer of the Order of Leopold II was awarded to Drs. Frank Billings and L. L. McArthur in recognition of their work for the cause of Belgium and humanity during the World War. Dr. Cyrille Vermeren, Belgian consul in Chicago, made the presentation.

Quarantine Regulations Upheld by Court.—According to a recent ruling of Judge Joseph Sabath of the superior court, the health commissioner has a legal right to order the arbitrary quarantine of any individual declared by medical experts to be a carrier of typhoid bacilli. The ruling was given in the case of Mrs. George A. Barramore on a hearing for a writ of habeas corpus, proceedings for which were instituted by Attorney Clarence Darrow for the American Medical Liberty League, to gain her liberty from the County Hospital, where she was placed in quarantine by order of the health commissioner. The source of infection in five cases of typhoid fever had been traced to Mrs. Barramore; four of the patients were boarders at her home, the other was her son. The first case occurred in June, 1915, the second in July, 1918; two cases developed in July, 1919, and the fifth case occurred early in September, 1919. The court recognized that there is more danger of the spread of the disease through a carrier than through a bedridden patient, owing to the greater possibility of contact with others. The decision acknowledges the commissioner's legal right to take any steps deemed necessary to preserve the health of the community.

INDIANA

Case of Leprosy Discovered.—Officers of the state board of health, following a thorough investigation, have reported the discovery of a case of leprosy in Robert Burdine of 2130 Webb Street, Indianapolis. It is thought that the man contracted the disease while in the United States military service in the Philippine Islands following the Spanish-American War.

Personal.—Dr. Frank F. Hutchins, Indianapolis, has resigned as medical director and superintendent of the Marion branch of the National Military Home. It is reported that he will be succeeded by Dr. William MacLake.——Dr. Lewis A. Storch, Indianapolis, suffered painful injuries when his automobile was struck by a street car recently.——Dr. Roy D. Morrow, Connorsville, sustained two broken ribs and a fractured ankle in an automobile collision.—Dr. Byrl R. Kirklin, Muncie, was elected president of the Delaware Blackford Medical Society at the meeting held in Muncie, succeeding Dr. Herbert L. Buckles, Hartford City.

IOWA

Personal.—Dr. Mary J. Erickson, Newberry, Mich., has been appointed chief of the laboratories of the research on social diseases in the department of pathology and bacteriology at the University of Iowa.

Southeastern Iowa Society Elects.—At the forty-fifth annual meeting of the Southeastern Iowa Medical Association, held in Ottumwa, November 10, Dr. Edward F. LaForce, Burlington, was elected president to succeed Dr. Edward T. Edgerly, Ottumwa, and Dr. George B. Crow, Burlington, was elected secretary-treasurer. The next meeting will be held in Fort Madison on the third Monday in October, 1921.

KANSAS

Physician Donates Private Hospital.—Dr. Samuel Murdock, Sabetha, has donated his private hospital to the Sisters of St. Joseph who will hereafter conduct it as a general institution under the name of St. Anthony's Hospital.

KENTUCKY

Nurse Anesthetist on Medical Faculty.—The Medical Department of the University of Louisville has appointed as full time anesthetist Mrs. Louise Miller, who will reside at the Louisville City Hospital and will conduct classes in anesthesia for the senior students. The state legislature recently legalized the practice of anesthesia by nurses and has authorized the appointment of a nurse examiner for anesthetists.

LOUISIANA

Hospital Appeals for Radium Fund.—Charity Hospital at New Orleans has made an urgent appeal for $10,000 for the purpose of purchasing radium for the treatment of cancer patients.

Free Clinics Opened.—The Monroe free clinic building, an adjunct of St. Francis Sanatorium, Monroe, was recently completed at a cost of $25,000, and citizens are raising a fund of $10,000 to furnish necessary equipment. Dr. Charles Vaughan, Monroe, will be superintendent of the clinic.—— A free clinic for colored poor has been inaugurated at Flint-Goodridge Hospital, 1566 Canal Street, New Orleans, under the charge of Dr. Ray T. Fuller, superintendent of the hospital.

MARYLAND

Health Association Plans Model Clinic.—Washington County Public Health Association has purchased property at 10 E. Washington Street, Hagerstown, for the purpose of establishing a model clinic.

Sanatorium Superintendent Appointed.—Dr. W. A. Bridges has resigned his position as medical director of the Maryland Tuberculosis Association in order to assume the duties of superintendent of Eudowood Sanatorium, to succeed Dr. Martin F. Sloan, now engaged in a tuberculosis survey for the United States government.

Lectures at Fort McHenry.—Dr. William C. Shroeder is giving a series of lectures on tuberculosis at the U. S. Public Health Hospital at Fort McHenry, for the instruction of Public Health Service physicians engaged in tuberculosis field work and of local public health physicians. These lectures will be repeated at intervals of two or three weeks.

Society Meetings.—At a special meeting of the Baltimore City Medical Society, held at Osler Hall, November 29, Dr. O. R. Avison, surgeon-in-chief of the Severance Hospital, Seoul, Korea, spoke on the "Medical and Surgical Problems of the Orient and the Development of Doctors and Nurses in Korea."——At the annual meeting of the Baltimore City Medical Society, held at Osler Hall, December 3, the following were elected officers for the ensuing year: president, Dr. Harvey G. Beck; vice president, Dr. Thomas R. Boggs; secretary, Dr. Frank S. Lynn, and treasurer, Dr. Charles Emil Brack. An address on "The League of Red Cross Societies and Its Relation to the Health of Europe" was given by Dr. Thomas R. Brown, who recently returned from abroad.

MAINE

New Officers of Penobscot County Society.—At the annual meeting of the Penobscot County Medical Association, held at Bangor, November 16, the following officers were elected for the ensuing year: president, Dr. Jarvis B. Woods; vice president, Dr. Charles H. Burgess, and secretary and treasurer, Dr. Harry D. McNeil, all of Bangor.

Health Department Offers Aid for Health Lectures.—The Maine State Department of Health has prepared a series of lantern slides, lecture notes, and literature on child welfare, rural sanitation, school hygiene, first aid, boy scouts, care of the baby, keeping fit, oral hygiene, tuberculosis, milk, insect pests and infectious diseases for the use of the district health officers, local health officials, women's clubs and popular health organizations.

MICHIGAN

Personal.—Dr. Mary C. McClellan, Smithtown Branch, N. Y., has been appointed to a position on the medical staff of the Traverse City Hospital.——Dr. Calvin A. Wisner, Columbiaville, narrowly escaped death recently when his automobile was struck by a train on the Michigan Central Railroad.

Smallpox in State.—Up to November 22, a total of 3,719 cases of smallpox has been reported to the state department of health for 1920, as compared with 2,070 cases in 1919. Some of the increase is attributed to more thorough reporting, but the situation is considered serious enough to command the attention of health officers of Wyandotte, Saulte Ste. Marie and other cities which have already experienced small epidemics.

Food Hygiene Regulated.—In compliance with a municipal ordinance recently passed in Escanaba no person will be permitted to work in any establishment where food is prepared, cooked or served without first obtaining a certificate from the health department certifying that he is free from venereal or other communicable disease. These certificates may be annulled by the health officer at any time if the employee becomes infected with any communicable disease.

MINNESOTA

Smallpox in Minneapolis.—On November 19, 153 cases of smallpox were under quarantine in Minneapolis according to the statement of Dr. Francis E. Harrington, city health commissioner. The department of health and the division of school hygiene has completed arrangements for vaccination of pupils.

Health Officers Elect.—At the annual meeting of the Minnesota Public Health Association, held at St. Paul, November 17, Dr. Charles L. Scofield, Benson, was reelected president; Mrs. H. A. Patterson and Dr. Albert J. Chesley, Minneapolis, vice presidents; Mrs. A. H. Vernon, Little Falls, secretary, and Mr. W. A. Laidlaw, St. Paul, treasurer (reelected).—— At the annual conference of health officers of Minnesota, held at St. Paul, November 17, Dr. Frederick U. Davis, Faribault, was elected president; Dr. Thomas F. Rodwell, Mahnomen, vice president, and Dr. Charles E. Smith, Rochester, secretary.

MISSISSIPPI

Personal.—Dr. W. E. Noblin was elected president of the Mississippi State Health Association at its annual meeting recently held at Yazoo.

State Sanatorium Assured.—Plans have been completed for the erection of a state tuberculosis sanatorium on a site located 39 miles south of Jackson on the Gulf and Ship Island Railroad, in a region covered with long-leaf pine forests. The sum of $1,463,000 has been appropriated by the state legislature for erection of the buildings.

MONTANA

Typhoid Carrier Causes Epidemic.—Eight cases of typhoid fever, three of them fatal, in Myers, Treasure County, were recently traced to a carrier employed in a threshing crew, according to reports of Dr. John C. E. Hagen, county health officer.

Hospital for War Veteran.—Disabled veterans of the World War will be received at Fort William Henry Harrison, near Helena, within the near future. The fort is being converted into a general hospital for the rehabilitation of disabled veterans from the northwestern states.

NEW HAMPSHIRE

Hillsborough County Meeting.—At the semiannual meeting of the Hillsborough County Medical Association, held at Milford, early in November, Dr. Frederick T. Lord, Boston, delivered an address on "Certain Aspects of Lobar Pneumonia and Serum Treatment," and Dr. Fritz B. Talbot, Boston, spoke on "The Treatment of Acute Illness in Children."

Tuberculosis Association Establishes Clinic.—The New Hampshire Tuberculosis Association opened a free tuber-

culosis clinic at Laconia, November 15. Drs. John M. Wise, superintendent of the tuberculosis sanatorium at Glencliff, and Robert D. Kerr, Manchester, executive secretary of the association and examining physician for southern New Hampshire, are in charge.

NEW JERSEY

Fined for Neglecting Report of Birth.—On complaint of the board of health of Montclair, it is reported Dr. Hayes J. Burnett was recently fined $50 and costs for failing to report a birth within the five day limit prescribed by the state law.

Convicted for Violation of Practice Act.—A report from the secretary of the New Jersey State Board of Medical examiners states that five individuals were recently convicted of violations of the medical practice act and penalized as follows: Josephine Ondeo was found guilty of unprofessional and dishonorable conduct and her license to practice midwifery was revoked, June 10; in September, Mrs. Minnie Magnette and Fred Michelback pleaded guilty to a charge of practicing without a license and were fined $200 each; in November, Dr. Charles Smith and Anthony DeVito, both of Newark, were found guilty and fined $200 each.

NEW MEXICO

New Officers for Bernalillo County Society.—At the November meeting of the Bernalillo County Medical Society, held at the Chamber of Commerce, Albuquerque, a resolution was adopted endorsing the passage of the Sheppard-Towner bill for the protection of mothers. Officers for the ensuing year were elected as follows: president, Dr. John R. Van Atta; vice presidents, Drs. Arno Klein and Carl Mulky; secretary-treasurer, Dr. Frank E. Tull, and corresponding secretary, Dr. George S. McLandress, all of Albuquerque.

NEW YORK

Schenectady Health Center.—The health department of Schenectady has purchased the Knights of Columbus property in Union Street and has converted the building into a health center. The center will be open daily from 9 a. m. to 5 p. m., and on Tuesday, Wednesday and Thursday evenings until 9 p. m. Clinics will be held for women's diseases, child hygiene, tuberculosis, mental hygiene, venereal diseases and eye, ear, nose and throat diseases.

Jefferson County Society Elects Officers.—At the annual meeting of the Jefferson County Medical Society, held at Watertown, November 9, under the presidency of Dr. Elbridge Minar, Mannsville, the following officers were elected to serve during 1921: president, Dr. George B. Van Doren, Watertown; vice president, Dr. Frederick G. Metzger, Carthage; secretary, Dr. Murray M Gardner, Watertown, and treasurer, Dr. Andrew H. Allen, Watertown.

New York City

Columbus Hospital Changes Location.—The management of the Columbus Hospital has purchased the St. Lawrence Hospital at 457 West One Hundred and Sixty-Third Street, and proposes to move to the new location within a few weeks.

Asthma and Hay Fever Clinic.—The New York Hospital has instituted a public clinic for the treatment of asthma, hay fever and various pollen, food and protein poisonings. The clinic is held on Monday and Friday afternoons. Dr. Robert A. Cooke is in charge.

Associated Clinics Meeting.—At the annual meeting of the Associated Out Patient Clinics to be held at the New York Academy of Medicine, December 13, Dr. William Gilman Thompson will deliver the principal address on "Present Inadequate Dispensary Service for the Treatment of Industrial Accident Cases."

Society Honors Dr. Kindred.—Dr. John J. Kindred, superintendent of the highways of Queens County and recently elected representative in Congress, was the guest of honor at the meeting of the Long Island City Medical Society, December 1. The reception was given in recognition of the work Dr. Kindred has done for the medical profession and for the society, of which he is a former officer.

Health Department Plans Attack on Cancer.—The major part of the increased appropriation given by the Board of Estimate for public health education will be spent by the health department in educational propaganda to reduce fatalities from cancer. Statistics indicate that the death rate of cancer rose from thirty-five per hundred thousand of the population in 1869 to eighty-five per hundred thousand in 1918. The appropriation for public health education has been increased from $1,000 to $7,500.

NORTH CAROLINA

Henderson Health Officer Resigns.—Dr. Edwin J. Kehoe has resigned his position as health officer for Henderson and Vance County.

New Officers of District Society.—At the annual meeting of the Fourth District Medical Society held at Wilson, November 11, under the presidency of Dr. Richard J. Noble, Selma, the following officers were elected: president, Dr. James C. Grady, Kenly; vice president, Dr. Edmund C. Boyce, Rocky Mount; secretary, Dr. Charles A. Woodard, Wilson (reelected), and treasurer, Dr. Byrd C. Willis, Rocky Mount (reelected). The next meeting will be held at Smithfield.

NORTH DAKOTA

Health Officer Resigns.—Dr. Arthur A. Nichols has tendered his resignation as city health officer of Fargo.

University Receives Library Gift.—The medical library of the University of North Dakota at Grand Forks is the recipient of the professional library, containing about 500 volumes, of the late Dr. Samuel Harvard Irwin, a former physician of Grand Forks. The gift is made through the generosity of Dr. Irwin's widow and children.

OHIO

Ross Welfare Association Election.—The following officers were elected at a recent meeting of the Ross County Welfare Association: president, Dr. Gilbert E. Robbins, vice presidents, Dr. William S. McKell and Miss Alice Bennett, secretary, Dr. Raymond E. Bower, and treasurer, Mr. C. M. Haynes, all of Chillicothe.

Columbus Tuberculosis Society Clinic Moved.—The Columbus Society for the Prevention of Tuberculosis has opened a new dispensary at Oak Street and Washington Avenue, to replace the dispensary formerly maintained at its old headquarters in East Long Street. The building was remodeled at a total cost of $25,000, and new equipment has been installed.

Personal.—Dr. Edwin J. Kehoe, Henderson, N. C., has been appointed director of the child welfare clinic of the Cincinnati City Health Center.——Dr. John W. Cogswell has been nominated professor of obstetrics and gynecology at the Ohio State University, Columbus.——Dr. William T. Moore, New Concord, a medical missionary to Egypt, has sailed for the Near East with his family.

PENNSYLVANIA

New Officers of Bucks County Society.—At the annual meeting of the Bucks County Medical Society, held at Doylestown, November 10, the following officers were elected: president, Dr. Frank Lehman, Bristol; vice presidents, Drs. John J. Sweeney, Doylestown, and Herman C. Grim, Trumbauersville, and secretary-treasurer, Dr. Anthony F. Myers, Blooming Glen.

Lycoming County Society Meeting.—The Lycoming County Medical Society, at its regular meeting, held at the Williamsport Hospital, November 12, decided to erect a tablet in memory of the members of the society who served in the World War. Dr. Henry D. Jump, Philadelphia, president of the state medical association, delivered an address on "Medical Economics."

Philadelphia

Mütter Lecture.—The Mütter Lecture of 1920 of the College of Physicians of Philadelphia was delivered at Mitchell Hall, Thursday evening, December 10, by D. J. Chalmers DaCosta on the subject of "Osteitis Deformans."

Personal.—Dr. J. Whitridge Williams, professor of obstetrics at Johns Hopkins University, was the guest and principal speaker at the annual invitation meeting of the Obstetrical Society of Philadelphia, December 2.

New Presbyterian Hospital Planned.—The Presbyterian Hospital has acquired additional land near its present buildings at Thirty-Ninth Street and Powelton Avenue, on which it is proposed to erect additional buildings for hospital purposes.

Postgraduate Lecture Course.—Dr. Jay F. Schamberg began a series of three illustrated lectures on the diagnosis and treatment of diseases of the skin and syphilis, December 3, in the auditorium of the Clinical Association on Sydenham Street.

Public Health Lecture.—The fourth public health lecture of the course given by the School of Hygiene and Public

Health of the University of Pennsylvania was delivered, December 4, by Dr. Philip P. Calvert, professor of zoology, on "The Rôle of Insects and Rodents in the Transmission of Disease."

SOUTH CAROLINA

Commission on Health and Sanitation.—The South Carolina development board has appointed a commission on health and sanitation including Drs. George B. Comer, Newberry, Davis Farnum, Greenville, Benjamin A. Henry, Anderson, Robert Wilson, Jr., Charleston, L. M. Fisher, U. S. P. H. S., and James A. Hayne, Columbia.

UTAH

Ogden Free Clinic.—The Ogden free clinic has been opened at Twenty-Fifth Street and Washington Avenue, under the auspices of the city and county commissioners, the Weber County Medical Society, the Red Cross and other welfare organizations. Dr. Joseph R. Morrell has been appointed medical director.

Child Welfare Campaign.—Dr. Heber J. Sears, chief of the department of hygiene and preventive medicine in the University of Utah, recently initiated a state campaign on health and child welfare by a series of lectures in Summit County. Physicians throughout the state have been appointed as lecturers in aid of the public campaign.

VIRGINIA

Medical College Appointment.—Margaret Morris Hoskins, Ph.D., has been appointed instructor in histology and embryology at the Medical College of Virginia, Richmond.

Society Elects New Officers.—The Northern Neck Medical Association at its annual meeting held at Kilmarnock elected the following officers for the ensuing year: president, Dr. Henry J. Edmonds, Kilmarnock, vice president, Dr. Maryus C. Oldham, Lancaster, and secretary-treasurer, Dr. C. T. Pierce.

WASHINGTON

Snohomish County Society Meeting.—The Snohomish County Medical Association at its regular November meeting elected Dr. Nathan L. Thompson, president, and Dr. Albert P. Duryes, secretary-treasurer.

Aberdeen Hospital Sold.—The Loyal Legion of Loggers and Lumbermen has purchased the Aberdeen Hospital for $40,000. The hospital will be enlarged and refurnished to provide facilities for lumbermen employed in the section.

WISCONSIN

Personal.—Dr. Guy W. Henika, Madison, for seven years deputy state health officer and supervisor of the state clinics, has tendered his resignation, effective January 1.

Seventy-Fifth Anniversary of State Association.—The State Medical Society of Wisconsin is arranging to celebrate the seventy-fifth anniversary of its founding at its annual session to be held at La Crosse, in October, 1921. All physicians who have practiced in the state and have moved away, as well as those who were born in or lived in Wisconsin but have practiced elsewhere, are to be invited to the "home-coming" in connection with the session. Memoranda regarding such physicians sent to Dr. Rock Sleyster, secretary, Wauwatosa, will assist in perfecting the records of the state association.

GENERAL

Meeting of Radiologic Society.—The Radiological Society of North America will meet at Chicago, December 15, 16 and 17, with headquarters at the Hotel Sherman.

Child Welfare School in the Philippines.—A school of puericulture has been organized in the Philippines, thanks to the efforts of the Philippine League of Infant Welfare, the president of which is Dr. José Albert.

Estate of General Gorgas.—Gen. William C. Gorgas left an estate valued at $20,500, according to the petition for the probate of his will entered by his widow, Mrs. Marie D. Gorgas. The estate includes proceeds of life insurance and a residence at Chevy Chase, Md.

Southern Medical Association Elections.—At the annual meeting of the Southern Medical Association, held at Louisville, November 15-18, under the presidency of Dr. Edward H. Carey, Dallas, Texas, the following officers were elected: president, Dr. Jere Crook, Jackson, Tenn.; vice presidents, Drs. E. Bates Block, Atlanta, Ga., and George A. Hendon, Louisville, and secretary, Dr. Seale Harris, Birmingham, Ala.

Physician Sails to China.—Dr. Franklin C. McLean, director of the Peking Union Medical College with headquarters at the Rockefeller Foundation offices in New York, is on his way to Peking where he will serve as professor of medicine at the medical college after January 1.

Medical Members of Red Cross.—Dr. Livingston Farrand has been reappointed chairman of the central committee of the American Red Cross; Surg.-Gen. Merritt W. Ireland has been designated to represent the War Department, and Surg.-Gen. E. R. Stitt has been named to represent the Navy Department.

Appointed Red Cross Health Director.—Prof. C. E. A. Winslow of Yale University School of Medicine has been granted leave of absence for the spring term so that he may assume the position of director of public health activities of the League of Red Cross Societies, with headquarters at Geneva, Switzerland.

Meeting of Students Health Association.—The American Students Health Association, an organization of persons interested in student health work, will hold a meeting at Chicago, December 31. Headquarters will be at the Sherman Hotel. Dr. Warren E. Forsythe of the University of Michigan, Ann Arbor, is secretary of the association.

British War Medals for American Officers.—According to a communication received from the British War Office by the Surgeon-General of the U. S. Army, on the completion of the list of officers and nurses who are entitled to receive the British War Medal for service with the British Army during the World War, these medals will be forwarded to the Surgeon-General for distribution from his office. When the medals are received in this country, they will be forwarded by Surgeon-General Ireland to those designated by the British War Office.

Institute on Venereal Diseases.—The Institute on Venereal Diseases, held at Washington, D. C., under the auspices of the U. S. Public Health Service was attended by 511 men and women, including 100 physicians, 48 directors of clinics, 47 nurses, 22 police women, 15 educators and 50 national, state and city health officers. The administrative officers of the institute were Surg.-Gen. H. S. Cumming, U. S. P. H. S.; Asst. Surg.-Gen. C. C. Pierce, director of the institute, and Mr. H. H. Moore of the division of venereal diseases, Public Health Service.

Officers of Tri-State Society.—At the thirty-sixth annual meeting of the Tri-State Medical Association of Tennessee, Arkansas and Mississippi, held at Memphis, November 30, December 1 and 2, under the presidency of Dr. John F. Sanders, Blytheville, Ark., the following officers were chosen for the ensuing year: president, Dr. G. B. Gillespie, Covington, Tenn.; vice presidents, Drs. John K. Crawford, Somerville, Tenn., Walter L. Boswell, Clarendon, Ark., and S. G. Mills, Alligator, Miss.; secretary, Dr. Arthur F. Cooper, Memphis, Tenn. (reelected), and treasurer, Dr. James A. Vaughan, Memphis, Tenn. (reelected).

Amendment to Narcotic Exportation Statute.—Senator L. Wesley Jones of Washington will introduce in the United States Senate a bill to amend the present federal statute which prohibit the exportation of opium or cocain. The proposed amendment will forbid the importation of these habit-forming drugs or their salts and derivatives. Crude opium, coca leaves and other crude narcotics may be imported only in such quantities as may be found necessary by the Surgeon-General of the Public Health Service for the manufacture of morphin, cocain or medicinal preparations for use within the United States. A duplicate bill will be introduced in the House by Representative John F. Miller of Seattle.

Survey of Drug Addicts.—Clinics conducted by the narcotic division of the Bureau of Internal Revenue, through which agency several thousand drug addicts were examined, reveal no evidence of an increase of the narcotic habit since prohibition went into effect. The number of women habitués is slightly in excess of the number of men. The investigation disclosed that different communities have their favorite narcotics. In New York the addicts consume heroin almost entirely; in Chicago there is a predominant demand for morphin; in San Francisco, owing to the many oriental inhabitants, opium is most frequently employed, whereas St. Louis, New Orleans and other cities with a large colored population, cocain is in vogue. Field agents of the bureau have recently discovered small stocks of hashish.

LATIN AMERICA

New Medical Courses in Chile.—Beginning in 1921 new courses of chemistry and toxicology will be given in connection with the subject of legal medicine in the School of Medicine of Chile.

Institute of Physiology in Paraguay.—The department of education has ordered the creation of an institute of physiology connected with the School of Medicine, which will be in charge of the professor of physiology.

New Sanatorium in Colombia.—There has been organized a corporation at Bucaramanga, Colombia, for the purpose of erecting a modern sanatorium. Half of the capital will be subscribed by the local physicians and the other half by private citizens.

New Health Board in Honduras.—A board of health has been appointed at Puerto Cortés to take charge of public health work at that port and to prevent the introduction of yellow fever. The board consists of Drs. Fidel Carías S., Camilo Jirón, T. Tábora, F. Canales, R. Andino Aguilar, and L. Rosales M.

Smallpox in Haiti.—Reports from Haiti indicate an unusual prevalence of smallpox on the island, several hundred cases of which have been recorded. The disease is apparently of a mild type, few fatal cases having been reported. The U. S. Navy has consigned supplies of smallpox vaccine to its representatives at Port-au-Prince.

Department of Public Health at Costa Rica.—There has been created a public health department at Costa Rica under the department of police. The new department will undertake a campaign against hookworm disease and will have charge of all public health work approved by the government. The appropriation for the first year amounts to 50,440 colones (about $20,000).

Yellow Fever Tablet at Guayaquil.—The authorities have ordered that a tablet be placed in the bacteriologic laboratory of the Public Health Department of Guayaquil to commemorate the discovery of the causative organism of yellow fever. The inscription reads as follows: "In this laboratory of the Public Health Service, the prominent Japanese bacteriologist, Hideyo Noguchi, member of the Rockefeller Institute, discovered the yellow fever organism, July 24, 1919."

FOREIGN

Quakers Feeding German Children.—The *Deutsche medizinische Wochenschrift*, p. 1284, mentions without comment that the American Quakers are spending daily 1,000,000 marks in a total of 100 German cities, for the feeding of German children, distributing 400,000 portions.

Station for Experimental Surgery.—The *Paris médical* relates that Mme. Frances Bostwick Voronoff has endowed the Collège de France with sufficient funds to equip and maintain a station for experimental surgery. The decree authorizing acceptance of the endowment was dated Oct. 28, 1920.

Retirement of Hutinel.—The Hôpital des Enfants Malades at Paris has received its last visit from Prof. V. Hutinel after more than forty years of service, as he has reached the age limit for retiring from his connection with the faculty and hospital. He is one of the editors of the *Archives de Médecine des Enfants*. The infectious erythema seen in typhoid and pneumonia is known as Hutinel's disease.

Congress of Tropical Medicine at Java.—The Fourth Congress of the Far Eastern Association of Tropical Medicine will be held at Batavia, Java, in August, 1921, and all physicians interested in tropical medicine are invited to attend. Papers should be in English, French or German and should be received before Jan. 1, 1921. Dr. P. Deqqeller, Weltevreden, Batavia, is secretary.

Deficit from Publishing Medical Journals.—The Swedish Medical Association publishes a quarterly, a monthly record of the transactions, and a monthly journal with one or two leading articles, abstracts and news. There was a deficit of 14,109 crowns last year, and the prospects are that the deficit will be much larger this year. The government appropriated last May 5,000 crowns for the publishing work of the association, and the latter recently appealed to have the subsidy renewed in 1921.

Prophylaxis of Venereal Disease.—The bill now under discussion in Italy provides for the compulsory notification of all cases of syphilis with contagious manifestations which are discovered in any school, college, sanatorium or other collective groups, civil or military. It also decrees the founding of a dispensary for venereal diseases in the principal town of every province and in every community with more than 30,000 inhabitants, and allows the organization of a dispensary of the kind wherever the prevalence of venereal diseases seems to require it.

Congress Week in Italy.—The Italian internists, surgeons and orthopedists held their separate annual meetings in Rome in the second week in November. The internists devoted their attention mainly to asthma, lymphogranulomatosis and electrocardiography. The main addresses in the surgeons' twenty-seventh congress were on surgery of the cecum and colon, and the treatment of fractures. The orthopedists discussed treatment and orthopedic correction of rigidity and ankylosis and treatment of epidemic poliomyelitis and of spastic paralysis. The same week the neurologists and psychiatrists met at Genoa to discuss abnormal children.

Grain Itch.—Two communications in the *Policlinico* report from different regions in Italy "vast epidemics" of dermatitis caused by *Pelliculoides ventricosus* in September and October. The dermatitis affected thousands, frequently all the members of the families. The intense pruritus was sometimes accompanied with a general reaction, fever, headache and delirium. The hairy regions, hands and feet always escaped, and it was easy to cure it with baths and starch powders, but on return home the dermatitis was contracted anew. The acarus was found even in bran dust, etc., and sometimes such numbers accumulated as to form reddish deposits on the grain and sacks containing it.

Announcement of Prize.—The Accademia delle Scienze of Turin, Italy, offers two awards of the Bressa prize, one covering the four years ending with 1918 and the other the four years ending with 1922. The amount of each prize is 9,000 lire. The prize is to be awarded to the scientist of any nation who in the judgment of the Accademia has made the most important or useful discovery or produced the most notable work in the physical or experimental sciences, natural history, applied mathematics, chemistry, physiology or pathology, including geology, history, geography and statistics, during the quadrennium in question. The Accademia will adjudge the prize as above whether the work has been presented in competition or not. The prize has been awarded previously on twenty occasions.

The Inter-Allied Conference on the War Disabled.—At this conference at Brussels in September, March emphasized that the Allies have contracted a common debt to their war disabled whatever flag they served under, and they owe protection to them wherever they may be residing, even if in an enemy country. The protection thus becomes international; it comprises the payment of pensions, the renewing of prostheses, medical care and possibly vocational reeducation. Another question discussed was the protection of the disabled against industrial accidents to which they are necessarily more liable than others. The International Labor Bureau claims that all the protection of the war disabled should be in its hands; that the lessons learned from the training and care of the war disabled should be applied to all laborers, and that as eventually all such matters will be referred to it, it should be given charge at once. Others ask merely that the state provide for alien disabled just as it does for its own disabled. An international card certifying to the war disability should be issued entitling to the same privileges in all the countries interested. A resolution was adopted advocating a single central laboratory for research on prosthetic appliances, to combine physiologists, orthopedists, etc., and to which suggestions can be sent to be tested out. The necessity for improving artificial arms was made manifest by the discussions, and also the fact that while amputation of the arm permits agricultural work, yet the men should be directed to the lighter aspects of it. Another resolution urged the centralization of all injured in industrial accidents, in order to profit by the lessons learned from the war. Further details are given on page 1659.

Deaths in Other Countries

Dr. **Alfredo Machado,** one of the leading pathologists of South America, member of the medical faculty at Caracas, president of the first national medical congress of Venezuela in 1911, and corresponding member of scientific societies in other countries, died in the prime of life.——Dr. **J. A. Ayerza,** surgeon of the Rivadavia Hospital at Buenos Aires, at one time director of the Asistencia Pública, author of numerous articles in medical periodical literature.——Dr. **L. Piron,** mayor of his city in Belgium until exiled to Holland by the war, aged about 70.——Dr. **G. Roncaglia,** professor of diseases of women at the University of Modena.——Dr. **F. Gangitano,** professor of surgery at the University of Camerino.

Government Services

Appointment of Medical Officers

Commissions in the Medical Corps of the U. S. Army have been awarded to the following emergency officers who have qualified in the October examinations for the selection of additional medical officers under the Army Reorganization Act:

LIEUTENANT-COLONELS

F. H. Bloomhardt, Altoona, Pa.
D. S. Fairchild, Washington, D. C.

MAJORS

E. J. Abbott, Fonda, N. Y.
R. A. Allen, Tacoma, Wash.
C. L. Banks, Constitution, N. H.
E. P. Beverley, San Antonio, Texas.
A. J. Black, West Haven, Conn.
Robert Burns, St. Louis.
R. A. Burns, Brownsville, Texas.
R. A. Campbell, Camp Marfa, Texas.
C. L. Chase, Washingtonville, N. Y.
T. L. Coley, Bethayres, Pa.
J. M. Downs, Los Angeles.
A. G. Franklin, Camp Jackson, S. C.
C. S. Freedman, Susanville, Calif.
F. N. Greene, Philadelphia.
D. J. Hayes, New Troy, Mich.
Howard Hume, Washington, D. C.
C. W. Jump, Bozeman, Mont.
W. G. McKay, Camp Benning, Ga.
P. D. MacNaughton, Calumet, Mich.
T. S. Troy, Decatur, Ga.

CAPTAINS

C. B. Callard, Aurora, Ill.
D. C. Campbell, Jacksonville, Fla.
M. D. Council, McRae, Ga.
R. N. Greene, Jacksonville, Fla.
L. W. Hassett, Camp Devens, Mass.
F. E. Hickson, Camp Dix, N. J.
D. C. Hutton, San Francisco.
H. E. Keely, Fort Sheridan, Ill.
H. G. Lareau, Chicago.
Ottis Like, Rockford, Ill.
W. J. Leary, Mondamin, Ia.
S. Marcus, Fort Sheridan, Ill.
J. I. Meagher, Fort Jay, N. Y.
J. L. Meddaugh, San Francisco.
F. J. Moennighoff, Kansas City.
R. C. Murphy, Chicago.
O. W. Nettles, Camp Dix, N. J.
C. A. Newcomb, Biltmore, N. C.
H. E. Orndorff, Glen Riddle, Pa.
J. B. Owen, St. Louis.
L. H. Palmer, San Antonio, Texas.
A. C. Rhine, Hampton, Ia.
F. W. Romaine, Philadelphia.
W. C. Russell, Camp Dix, N. J.
G. J. Schirch, Washington, D. C.
F. N. Stiles, Grand Junction, Colo.
D. W. Sullivan, Milbank, S. D.
David Walley, Richton, Mass.

FIRST LIEUTENANTS

W. E. Dapp, Fairfield, Ohio.
A. D. Haverstock, Washington, D. C.
J. F. Lane, Greenville, Tenn.
J. I. Martin, Camp Grant, Ill.
I. F. Peak, Bolivar, Tenn.
G. P. Rawls, Indianapolis.
W. C. Royals, New Orleans.

Reserve Officers' Training Corps Units

Reserve Officers' Training Corps schools for the Medical Corps of the Army have been inaugurated in two colleges by the appointment of Lieut.-Col. James C. Gregory, assigned to the Rush Medical College, Chicago, and Major Robert W. Kerr, assigned to Washington University, St. Louis, as professors of military science and tactics. The courses at both of these institutions will start with an initial enrolment of over 100 students. Units of the Reserve Officers' Training Corps will be established in other medical colleges as soon as these comply with the terms of the Army Reorganization Act.

Colonel Depage Awarded Distinguished Service Medal

Surgeon-General Ireland has been designated by President Wilson to present the Distinguished Service Medal to Col. Antoine Depage, surgeon in the Belgian Army, for the assistance which he rendered young and inexperienced officers of the American Expeditionary Forces at his hospital at LaPanne, Belgium. The Belgian surgeon took a personal interest in training officers of the American Army in the technical advances in military surgery and in the treatment of the wounded.

Chaulmoogra Oil in Tuberculosis

Surgeon-General Cumming has announced that the widely circulated statement that the U. S. Public Health Service has found chaulmoogra oil efficacious in the treatment of tuberculosis is unwarranted. Experiments made some years ago with the oil gave no definite results. Recently experiments with its ester or derivatives were begun because of hopes based on some similarities between the bacillus of leprosy and of tuberculosis, but these have not proceeded far enough to warrant scientific deductions.

Medical Officers, U. S. Navy, Relieved from Active Duty

ILLINOIS

Bowen—Judy, J. A.
Oak Park—Moore, H. W.

NEW YORK

Troy—Smith, G. E.

NORTH CAROLINA

Franklin—Angel, F.

OHIO

Toledo—Werum, P. D.

TEXAS

San Antonio—Kelley, H. C.

VIRGINIA

City Point—Lee, F. H.
Richmond—Reese, W.A.

WISCONSIN

Milwaukee—Malkin, G. M.

Foreign Letters

PARIS

(From Our Regular Correspondent)

Nov. 19, 1920.

Wounds of the Liver

Dr. P. Soubeyran, agrégé professor of the Montpellier Faculty of Medicine, has just published an interesting book dealing with wounds of the liver and the biliary ducts (F. Alcan, publisher). The work is based on observations made during the war. It discusses 297 cases, 147 of which resulted in recovery and 150 ended fatally. The cases in which operation was performed; namely, 221, resulted in 86 recoveries and 135 deaths. The 76 cases in which operation was abstained from yielded 61 recoveries and 15 deaths.

What are the serious factors to be considered in wounds of the liver? In the first place may be mentioned the form and extent of the hepatic lesion. Thus, Soubeyran found that four wounds resulting from bursting shells all ended fatally. Of seven penetrating, tunnel wounds, four proved fatal and three gave recoveries. Of nine patients with lacerating wounds, seven survived and two died. Of six perforating tunnel wounds, three were fatal and three were benign. A very important factor affecting the gravity of wounds of the liver is the coexistence of other visceral lesions. Soubeyran reports 35 deaths out of 136 isolated lesions of the liver, and 115 deaths among 161 patients with associated visceral lesions.

From a study of the published facts and from twenty-six cases in which he made personal observations, Soubeyran concludes that surgical intervention in wounds of the liver has the following three indications: (1) frank signs of hemorrhage, especially if the path of the projectile appears to affect the region of the hilum; (2) when an associated visceral lesion is suspected, and (3) when a large foreign body is included within the liver. As regards small fragments, we may expect periods of quiescence and periods of intolerance.

Surgical intervention is contraindicated (1) when the signs of hemorrhage are nil or slight; (2) if the liver alone is injured, and the fragment (of small volume), although it has remained in the liver, seems to cause no further disturbance, and (3) when the patient is suffering too severely from shock, or is seen too late.

Soubeyran's work closes with an excellent chapter on technic. Passing in review the various methods of approach to the liver, he declares himself an advocate of Mayo-Robson's incision. As for whether wounds of the liver should be sutured or tamponed, he says they should be sutured when the general condition of the patient is satisfactory and when the wound is of regular outlines and easily accessible, as this method has the advantage of reconstituting the liver anatomically, allows the abdomen to be closed entirely, and avoids all danger of eventration. Tamponing should be reserved rather for the tracts caused by rifle bullets, for wounds of irregular outline, and for wounds with great loss of substance. It is indicated when the general condition is serious and when the hepatic tissue is fragile. It is the only method that can be used if the wounds are deep and difficult of access.

Death of Prof. G.-M. Debove

Prof. Maurice Debove, perpetual secretary of the Academy of Medicine, died recently after a long and painful illness, which, a short time ago, necessitated surgical intervention.

Debove was born in Paris, March 11, 1845, and in 1873 was graduated as doctor of medicine. In 1877 he became physician to the hospitals and in 1878 agrégé professor. In 1890 he was given the chair of internal pathology in the Faculty of Medicine of Paris. In 1901 he exchanged this for the

chair of clinical medicine. In 1902 he succeeded Professor Brouardel as dean of the faculty, but held this office only a short time. He was elected in 1892 a member of the Academy of Medicine, and in 1913 he succeeded Professor Jaccoud as perpetual secretary of this assembly.

Debove was a pupil of Charcot and occupied himself in his early years with the pathology of the nervous system. Later in life he published numerous works on the diseases of the digestive tract. We are indebted to him for several improvements in the technic of gastric catheterization and lavage of the stomach, the introduction of forced feeding in the treatment of tuberculosis, and the application of ethyl chlorid as a spray in the treatment of neuralgia, more especially, sciatic neuralgia.

Debove took an active part in the campaign against alcoholism and against tuberculosis. The Ligue nationale contre l'alcoolisme retained him for many years as their president.

As perpetual secretary of the Academy of Medicine, Debove was devoted to the interests of this assembly.

LONDON

(From Our Regular Correspondent)

Nov. 15, 1920.

The Ministry of Health and the Medical Secret

The unsatisfactory state of law in this country, which does not recognize the physician's right of secrecy as to information which he has acquired in confidence from his patients, has often been discussed in these columns. The case of a physician who had attended a woman at a venereal clinic established by the Ministry of Health and was summoned to give evidence in an action for divorce, which she brought against her husband, has also been reported. The physician drew the judge's attention to the fact that the venereal disease regulations require all information acquired in the course of his duties at the clinic to be regarded as strictly confidential; but the judge ruled that he was bound in law to answer any questions put to him. It is to be noted that in this case there was no question of violating professional confidence, as he was summoned on behalf of the patient. The case has caused the Ministry of Health to consider the whole question, and the principal medical officer, Sir George Newman, has issued a letter on the subject. He says that the ministry is advised that the obligation which it imposes on the physician is not to disclose to third parties any facts which his examination of the patient may bring to light. This, in effect, restates the well-known rule of the medical profession and adds a legal sanction to it. But, so far as the ministry is aware, a disclosure at the express request of the patient and in the patient's own interest would not be contrary to any principle of medical ethics, and the ministry does not place any different interpretation on the regulations. Cases will readily occur to every physician in which it may be almost said to be his moral or social duty to comply with such a request.

In such a case as the one referred to above, a refusal to give evidence to establish the patient's case might lead to a denial of justice. It is necessary to add, however, that the venereal disease regulations do not purport to and, indeed, cannot override the general law, which requires a witness in a court of justice to answer all such questions as the judge may hold to be relevant to the issue. Strictly speaking, the legal profession alone is entitled to claim a professional privilege in this respect, and it may be that cases will arise in the future in which a physician, subpenaed at the instance of the other party to the litigation as a witness of facts relating to a patient, cannot give evidence without violating professional confidence. If, in these circumstances, he finds himself involved in a conflict of duties, it appears to the ministry that he may properly appeal to the court for protection, and it is confident that to any such appeal the court, so far as the law allows, would give a full and sympathetic consideration.

A Fellowship of Australian Surgeons

At the recent Australasian Medical Congress, held in Brisbane, the establishment of an association or fellowship of Australian surgeons was discussed in the surgical section. This was the outcome of a letter addressed by Prof. L. E. Barnett of Chicago to the honorary secretary of the section. He suggested that action might be taken somewhat on the lines of the American Fellowship in order to obtain a higher grade of efficiency in surgical work and to provide a hall-mark for bestowal on the efficient. Mr. Hamilton Russell moved that "the members of the Surgical Section of the Eleventh Australasian Medical Congress approve of the suggestion of Professor Barnett that the time has arrived for considering the desirability of forming an Australasian Surgical Association, with the object of raising the standard of surgery in Australasia, and that they pledge themselves to an endeavor to formulate an appropriate scheme for the establishment of such an association." He referred to the formation in Melbourne of the Surgical Association. They had discovered in that city evidence of marked insularity in the three clinical schools, and a tendency for graduates to develop on fixed lines and within narrow limits. To overcome this and to establish a closer relation between the members of the surgical staffs of the hospitals, the Surgical Association was formed. It was inspired by the same motives of improving the standard of surgical works as was Professor Barnett's suggestion. An amendment was moved in favor of forming a section of surgery in each branch of the British Medical Association in Australia and New Zealand. The proposer feared that otherwise there might be some interference with the whole-hearted support of the British Medical Association. A lively discussion followed. On one side it was contended that the formation of a separate society would diminish the interest taken in the British Medical Association and weaken it. On the other, that safeguards could be provided by restricting membership of the fellowship to members of the British Medical Association and giving all publications to the official journal. Mr. G. A. Syme of Melbourne said that if every one were admitted, surgeons would be less inclined to discuss their failures and their accidents, which they would do in the presence of a limited number of experts. Another speaker said that conditions in Australia and America were not parallel, and that they should discard any attempt to follow American precept. The presence of outsiders at a specialists' meeting did not retard work. If they were excluded, a method of postgraduate instruction was lost. In America no special surgical degree had been created prior to the formation of their fellowship. In Australia, all the universities except Sydney provided a special and advanced surgical degree. Such degrees were sufficient to hall-mark the efficient. One member was struck when in London by the fact that while the British Medical Association dominated medical politics, the Royal Society of Medicine monopolized the scientific activity of its members. It was contended, on the other side, that to overcome the unfortunate provincialism of certain schools the new organization was necessary. Frank discussion and candid criticism were impossible in big meetings, and only in private gatherings of specialists could men rub off one another's angles and speak intimately of their difficulties and failures. Mr. Russell said, in reply, that the British Medical Association would be better supplied with surgical material by the existence of the fellowship. He could not believe that there was any danger to the British Medical Association. The amendment was carried by a large majority.

BELGIUM

(From Our Regular Correspondent)

Nov. 2, 1920.

Tuberculous Soldiers

At the fourth interallied conference, recently held in Brussels for the discussion of matters pertaining to the care of disabled soldiers, the question of tuberculosis brought forth the most reports and awakened a lively exchange of views. This is not surprising when we consider the frightfully large number of tuberculous soldiers that have been listed by the pension boards of the various countries. The experience of Italy will suffice to give an idea of the situation. In 1914 the number on the pension list, by reason of tuberculosis, was 1,224. By the end of 1919 this number had risen to 40,000. Of the prisoners of war, 29 per cent. had been recognized as tuberculous. In view of the constant increase of tuberculosis, or, we may say rather, in view of the discouraging results brought about by war conditions, it was declared by the conference to be a matter of urgent need that measures be adopted to meet the new situation that had arisen, in which connection it was especially important that reliable information be secured in regard to the exact extent of the spread of tuberculosis.

At the suggestion of Senator Foa of Italy, the tuberculosis commission passed a resolution that information be secured as soon as possible in regard to the total number of tuberculous pensioners, including both those who had contracted the disease during the war and those whose condition had become aggravated by reason of the war or through service therein, and that the organizations already in existence in the several countries be called on to furnish reports on the tuberculous men already pensioned, and to ascertain the number of tuberculous persons among those who had been mobilized for war. One fact seems to be already definitely established; namely, that the compensation which has been allowed soldiers pensioned by reason of tuberculosis is not commensurate with the imperious demands by way of rational treatment that this grave disease imposes.

The need of the complete revision of the disability claims as presented by the tuberculous, and the necessity of an increase in the compensation to be granted this class of pensioners once recognized, the next step would be to demand greater care in the examination of the patient and the diagnosis of the disease. For this reason, it becomes necessary that the diagnosis of tuberculosis be intrusted to professional phthisiotherapeutists, who should be encouraged by their respective governments in their specialization. These specialists should establish the identity of *B. tuberculosis* by culture methods, and their examinations of suspected sputum should not be confined to a single specimen taken in haphazard fashion any time during the day but should be applied more particularly to the first expectorations of the morning and should be repeated several times before a definite decision is reached.

Every physician cannot be expected to be competent to pronounce a judgment on the grave question of diagnosis of tuberculosis, especially if we consider that such judgment will have such a profound bearing on the whole existence of the patient and may occasion heavy expense to the state. It is also desirable that existing laboratories be adequately provided with the proper equipment, and that laboratories called on to give expert opinions shall have thoroughly trained men at their head. Medical assistance must be assured by means of dispensaries and sanatoriums, but in order to meet the need the number of these must be increased and they must be manned by the most competent personnal. Aside from the question of treatment, the problem of the amount of indemnity to be allowed tuberculous pensioners awakened much polemic discussion. Basing the opinion on the fact that forced feeding and complete rest are indispensable conditions in the rational and effective treatment of tuberculosis, it must be admitted as a fundamental principle that proved tuberculous subjects should be regarded as presenting total disability, at least for the time being; otherwise they are robbed of the opportunity of securing complete rest and are thus deprived of the chance of recovering.

M. Reisdorff, general secretary of the Oeuvre des invalides de guerre belges, expressed the view that the amount of pension granted should not depend on the (more or less fluctuating) state of health of the patient at the time he presented himself for medical examination, but should be determined with great care by the same medical specialists in tuberculosis that were called on to furnish the diagnosis. Such specialists, when it becomes their duty to establish the amount of pension of proved tuberculous subjects, should raise the percentage of disability to the maximum, no matter what the localization of the infection might be.

From the standpoint of public hygiene and prophylaxis, tuberculous soldiers constitute a menace by reason of the danger of contamination that they present. At times, the usefulness of isolation should be considered. The Belgian delegates even proposed that isolation be made obligatory, or suggested that as a penalty the pension might be reduced if isolation was refused.

If the general conditions proposed can be realized, the recovery of a number of patients and the utilization of otherwise wasted energies can be confidently expected. But, in order to make this fully possible, it will be necessary to provide later industrial and professional training. The conference expressed the desire that such training be directed by commissions composed of medical and professional men, and that it should take into consideration the necessities arising out of the nature of the disease in question, such as apprenticeship in healthful occupations, the organization of rural and village colonies, and of community associations. Former soldiers, now tuberculous, should, furthermore, be able to take advantage, with the least possible delay, of the laws permitting them to establish themselves in the rural districts. Then again, among the lines of work reserved for disabled soldiers, certain positions should be specially selected and given to men who have been tuberculous but who have recovered and can no longer transmit the disease.

MEXICO CITY

(From Our Regular Correspondent)

Nov. 20, 1920.

Plague and Yellow Fever

It was generally believed that we were entirely rid of plague, as no more cases had occurred in Vera Cruz since June 30, when the last human case was reported. Recently, however, a new focus of bubonic plague was discovered in the town of Cerritos, in the state of San Luis Potosí. Up to October 30, fifteen cases and eight deaths had been reported. It is assumed that the disease was conveyed to that town by some sick rodent from Tampico taken in a cargo of merchandise.

The enforcement of antiplague measures at San Luis did not prove to be especially difficult, as the necessary equipment was sent immediately from Tampico in order to check the epidemic at the start. Dr. A. E. Gochicoa, who successfully conducted the campaign at Tampico, organized the service at San Luis. After he left, the campaign was placed in charge of Dr. F. L. Rocha, who had received his training under Dr. Gochicoa. The necessary measures were carried out by a personnel already trained in deratization and disinfection, and it is expected that we shall have no more trouble on this account.

Yellow fever is still present at Vera Cruz, though it shows a tendency to decrease. So far there have been 175 cases and seventy-two deaths. Besides the antimosquito measures mentioned in previous letters, prophylactic vaccination with Noguchi's vaccine has been employed, a good supply being sent by the International Health Board. Noguchi's anti-icteroides serum has also been tried. As yet it cannot be stated definitely whether either of these preparations prevents or cures the disease. This is due not only to the lack of statistics but also to the fact that it has not always been possible to display the required scientific accuracy in the use of the preparations. For instance, there was a case which attracted much attention, in which a person who received two injections of Noguchi's vaccine developed fever and albuminuria. Assuming that it was yellow fever, 20 c.c. of serum was injected intravenously, and as a result the patient died four hours afterward. It is now understood, however, that in this case death was due to anaphylactic shock. As a consequence, it has been decided to show more caution in similar cases. In Yucatán, although the number of cases is smaller, the results seem more favorable. Of six cases, four were diagnosed and the patients treated with the serum during the first seventy-two hours. The four recovered, while in the other two, in which the serum was given after that period and when the patients seemed intensely toxic, no effect was apparent. A patient treated at Campeche during the first twenty-four hours recovered, the temperature decreasing to normal six hours after the injection. It is not certain, however, that this was a case of yellow fever. It is noteworthy that besides the cooperation of the International Health Board, the oil companies have also organized a public health committee, which has helped to sanitate and cleanse the ports of Tampico and Tuxpan, and besides, some companies have made gifts of oil for use in ponds.

As the yellow fever epidemic began in June, it is not surprising that it is not yet ended, in view of the fact that even so well conducted a campaign as that at Guayaquil in 1918-1919 did not show results until five months had elapsed. On the other hand, during the fall and winter, strong north winds prevail along the Gulf coast which bring about a material decrease of temperature—to 10 or 12 C. (about 50 F.) at Vera Cruz and to 0 C. (32 F.) at Tuxpan, which is fatal to adult stegomyias. If during this period the oiling of ponds is pushed in order to destroy larvae, and if the people take care to destroy larvae and mosquitoes, we may hope that by next spring the Gulf focus of yellow fever will be extinguished forever. That would make a fact of the idea held by the lamented Gorgas, who hoped to write the last chapter of yellow fever, and at the same time it would be one of the most encouraging episodes in the history of human progress. Having all this in mind, our sanitary authorities have not neglected any means to carry out the campaign against the epidemic. They had to overcome obstacles, as there was a scarcity of funds and it is difficult to impress the general public with the value of the procedures recommended, as no immediate results are apparent.

Personal

Dr. J. Prado Romaña has arrived at Mexico as the diplomatic representative of the government of Guatemala.——Dr. Emilio Galán has been appointed director of the Hospital General.——Dr. Alfredo Cuarón has been appointed head of the yellow fever service at Tampico.——The following physicians have left on their way to the United States: Dr. F. Castillo Nájera for New York on private business; Dr. Ricardo Granillo, who has been granted a fellowship by the Rockefeller Foundation, and who will take a graduate course in public health at Johns Hopkins University; Dr. Francisco de P. Miranda, who will become Mexican sanitary delegate at New Orleans, and Drs. Tomás G. Perrín and A. Brioso Vasconcelos, who will represent the Academy of Medicine and the Department of Public Health, respectively, at the Pan-American Conference on Venereal Diseases, which will be held at Washington in December.

MADRID

(From Our Regular Correspondent)

Oct. 28, 1920.

Increase of Venereal Diseases in Madrid

Dr. Díaz Villarejo, in a lecture on the constant increase of venereal diseases in Madrid, attributes this increase to (1) venereologists who do not conduct the sanitary propaganda expected of their profession; (2) the flourishing of the infamous advertising of proprietary medicines and quack remedies; (3) patients who either do not consult physicians or, if they do, disregard their prescriptions, and (4) the indifference of the government, which does not concern itself with the problem. The enormous increase of syphilis was shown by Dr. Díaz Villarejo by means of statistics taken from Dr. Castelo's clinic in the hospital of San Juan de Dios from 1902 to 1919. During that period the new cases of syphilis increased from 454 in 1902 to 1,540 in 1919. In 1902 there were fifteen cases of syphilis in children below 18 years of age, while in 1919 the number was 103. It is a matter for regret to see the small number of prostitutes that apply for treatment, and their youth. Young women of this type become ordinarily infected the first year. More than half were infected during that period, and the remainder between the second and at the most the third year, as shown by 600 case reports taken from Dr. Castelo's service: 304 the first year, 186 the second, and 110 the third. Dr. Díaz Villarejo says that there is no question more disregarded in Spain than venereal diseases. Reglementation, as practiced in Spain, means only that the prostitutes use as a certificate of health a printed sheet that can be signed by any physician and which serves only to benefit unscrupulous members of the profession. Prostitutes are at all times out in the most central parts of the town, but they are never seen by the police. In the pavilion reserved for them in the San Juan de Dios Hospital there are under treatment only four pitiful women, who lack even clothing. In order to fight the social evil, Díaz Villarejo advises prophylactic measures, educating women and surrounding them with economic, social and moral guarantees. He recommends moral and antivenereal education for working men, students, soldiers and prostitutes, the establishment of prophylaxis stations, the distribution of prophylactic kits, compulsory treatment of venereal diseases and reglementation.

Meeting at Jerez de la Frontera

The public health employees of Andalusia are consolidating their forces and have formed an association, composed of physicians, pharmacists, veterinarians and *practicantes* (nurses). They have been holding numerous meetings to present their grievances and criticize the actions of the heads of the Spanish Public Health Service. The constitution of the Unión Médica Andaluza is rather unique, as all its members sign I. O. U.'s for 5,000 pesetas (about $600), which the union can collect, should the member break the pledges made when admitted to membership. At this year's meeting the town physicians have repeated their age-long complaints, as municipal authorities still fail to pay them, in spite of governmental orders and decrees. There is a physician whose salary is 1,250 pesetas a year, and his pay arrears amount to 20,000 pesetas. Another case is that of a physician's widow who has a bill for arrears of salary amounting to 40,000 pesetas, and in order to support his children had to become a servant of one of the aldermen of the town. These stories so incensed the attending physicians that they prepared an

indignant protest against the authorities and threatened more radical measures. The physicians of Coin, who went on a strike and then gave it up when the mayor paid them their back salary, are again threatening a strike, as they have not been paid this year either. These frequent medical strikes involve, however, the danger, as already stated, that if patients get out of the habit of being treated by physicians, in the long run they will convince themselves that medical service is not necessary.

At the same assembly the other public health professions stated their respective complaints. We heard, for instance, the plea of the *practicantes*, or minor surgeons, who are at once nurses, midwives, masseurs, and the like, being in possession of degrees obtained through elementary studies and examinations. This profession is peculiar to Spain. When the number of physicians was too small for actual needs, the *practicantes* rendered efficient aid; but nowadays when there is a plethora of physicians, the *practicante* in most cases is rather a rival than a collaborator of the physician. The Andalusian physicians showed an altruistic spirit and accepted the union with the *practicantes* to strengthen their protests even more.

Among the subjects discussed was the grievance of Spanish physicians because of the readiness with which foreign physicians are authorized to practice in Spain, while Spanish physicians are rejected by those in authority in other countries. This is always irritating, but most especially as regards France, as there are always French physicians practicing their profession either permanently or temporarily in Spain, while no Spanish physicians are allowed to practice in France. French protectionism is carried so far in this respect that even those Spanish physicians who served in France during the war are forbidden to practice their profession there.

Increase of Malaria in Spain

The excessive increase of malaria is causing much concern in Spain. One of the causes is the arrival of soldiers from Morocco, where the army is conducting a campaign in unhealthy, malaria-stricken territory. In some provinces the disease has increased so much that the Geographic and Statistical Institute states in its last report that last year there were 3,000 deaths from malaria. It may be estimated that for each death there are 100 cases. Therefore, even accepting optimistically the number of 3,000 deaths as accurate, this implies 300,000 malaria patients. Such conditions are really shameful, as this disease is easily curable; to avoid their continuation, something more effective is needed than the appointment of a committee, the only thing done thus far. The newspapers urge the sending of quinin to the infected places to be distributed free of charge at drug stores and, where there are no drug stores, at cigar stores or taverns.

Monument to Martín Salazar

After the medical week at Santander, there was unveiled at the Sanatorium of Pedrosa a bust of Dr. Manuel Martín Salazar, inspector general of public health. The Sanatorio de Pedrosa for pretuberculosis children is a state institution that was founded through Dr. Martín Salazar's efforts. The place for the monument was therefore chosen appropriately. The position of inspector general was created by Sr. La Cierva, a minister who wanted to take public health affairs out of politics. He achieved his purpose, appointing Dr. Martín Salazar as a result of a competitive examination in which the latter showed his great knowledge in all branches of public health. Before that he had studied many years at the infectious diseases institute directed by Koch in Berlin, and had been a professor in the academy of military medicine, besides having distinguished himself in the antiplague campaign in the Canary Islands.

Marriages

ELLIOTT HARRISON METCALF, Rockville, Conn., to Miss Emily Elizabeth Snyder of Mt. Carmel, Pa., at Washington, D. C., November 15.

PAUL H. WALTER, Bethlehem, Pa., to Miss Mary Elizabeth Mock of Philadelphia, at New York, November 17.

PAUL LIVINGSTONE, East Orange, N. J., to Miss Jean Patterson Miller of Beaver Falls, Pa., December 1.

JONAS CLARENCE KOPELOWITZ, St. Louis, to Miss Evelyn Lucile Friedman of Seattle, November 30.

WILLIAM GEORGE EPSTEIN, Chicago, to Miss Florence Virginia Simpson of Wheaton, Ill., recently.

EDMOND LAWRENCE FAUST to Miss Consuelo Abaunza, both of New Orleans, November 18.

MELVIN J. LOCKE to Miss Mary S. Alexander, both of Bellefontaine, Pa., October 30.

RAY MCKINLEY DIX to Miss Olive Genevra Dickson, both of Chicago, recently.

HARRY GEORGE LEON, to Miss Anna Landis, both of Chicago, August 29.

Deaths

Joel Cullen Hall ⊕ Anguilla, Miss.; Long Island College Hospital, Brooklyn, 1867; aged 82; surgeon of the Thirty-Seventh Tennessee Volunteers during the Civil War; at one time health officer of Sharkey County; for two terms a member of the state legislature; died, November 19.

William Thomas Bell, Selmer, Tenn.; College of Physicians and Surgeons, Keokuk, Iowa, 1881; aged 62; a member of the Tennessee State Medical Association; at one time president and at the time of his death secretary of the McNairy County Medical Society; died, November 14.

Jack Bryant Stinson, Sherman, Texas; New Orleans School of Medicine, 1861; Bellevue Hospital Medical College, 1874; aged 82; assistant surgeon of the Twelfth Alabama Infantry in the Confederate Service during the Civil War; died, November 17, from senile debility.

Charles Arthur Lothrop ⊕ Stanley, Wis.; Hahnemann Medical College, Chicago, 1892; aged 51; at one time physician of the Wisconsin Veterans' Home; was instantly killed, October 26, near Hannibal, when the automobile in which he was riding overturned.

Henry William Karl Abraham ⊕ Appleton, Wis.; Rush Medical College, 1898; aged 54; president of the State Medical Society of Wisconsin, and a member of the State Board of Medical Examiners; died suddenly, November 22, from heart disease.

William Duncan O'Brien, Pittsburgh, Pa.; Bellevue Hospital Medical College, 1878; aged 67; a member of the Medical Society of the State of Pennsylvania; surgeon of the Baltimore and Ohio Railroad for twenty-five years; died, November 15.

John H. Devor, Chambersburg, Pa.; College of Physicians and Surgeons, Baltimore, 1885; aged 63; a member of the Medical Society of the State of Pennsylvania; for fourteen years a member of the Chambersburg Hospital staff; died, November 13.

Elmore Flavius Mitchell, Beech Grove, Ky.; Hospital College of Medicine, Louisville, 1905; aged 46; a member of the Kentucky State Medical Association; died at the Owensboro (Ky.) City Hospital, November 16, following an operation for appendicitis.

Thomas H. Baker, Louisville, Ky.; Hospital College of Medicine, Louisville, 1889; aged 61; a member of the Kentucky State Medical Association; health officer of Louisville, and postmaster for nine years; died, December 1.

Joseph C. Krejci, Sioux City, Iowa; University of Vienna, Austria, 1862; aged 84; a member of the Iowa State Medical Society; for almost half a century a practitioner of Sioux City; died, November 12, from nephritis.

William McGranahan Blaine, Youngstown, Ohio; Pulte Medical College, Cincinnati, 1895; aged 48; lieutenant, M. C., U. S. Army, and discharged, Dec. 17, 1918; died, November 22.

⊕ Indicates "Fellow" of the American Medical Association.

Daniel H. Luce, Oneonta, N. Y.; New York Homeopathic Medical College and Hospital, New York, 1889; aged 57; a member of the Medical Society of the State of New York; died, November 16, from angina pectoris.

Franz Edward William Hopke, Brooklyn; New York Homeopathic Medical College, New York, 1899; died in the Wade Sanitarium, November 23, from injuries received when he was struck by an automobile.

John Austin Moore, Birmingham, Ala.; College of Physicians and Surgeons, Baltimore, 1885; aged 58; a member of the Medical Association of the State of Alabama; died, November 19.

Luman P. Sturtevant, Conneaut, Ohio; Homeopathic Hospital College, Cleveland, 1874; aged 74; for forty-six years a practitioner of Conneaut; died, November 10, from heart disease.

William Adams Dayton, New York; College of Physicians and Surgeons in the City of New York, 1880; aged 62; consulting aurist at Tarrytown Hospital; died, November 19.

George Bush Walp, Philadelphia; Medico-Chirurgical College of Philadelphia, 1901; aged 44; captain, M. C., U. S. Army, and discharged, October 31; died, November 18.

Jacob Henry Palmer, Fort Dodge, Iowa; Medical College of Ohio, Cincinnati, 1874; aged 68; died at the Des Moines Hospital, following an operation for gallstones.

Harrison Llewellyn Harris, Richmond, Va.; Howard University, Washington, D. C., 1882; aged 65; a colored practitioner; died, November 19, from nephritis.

Harry H. Smith ✠ Middletown, Ohio; Indiana Medical College, Indianapolis, 1907; aged 48; at one time physician at the Indiana Reformatory; died recently.

Benjamin S. Story, Happy Jack, La.; University of Louisville, Ky., 1880; aged 65; at one time a member of the state board of health; died, November 15.

Daniel T. Condict, Goshen, N. Y.; Albany (N. Y.) Medical College, 1874; aged 68; physician of Orange County; died, November 19, from ivy poisoning.

William S. S. Young, Vallejo, Calif.; Hahnemann Medical College and Hospital, Philadelphia, 1888; aged 58; died, November 16, from nephritis.

Gustavus Adolphus Weyer ✠ San Francisco; University of California, Berkeley and San Francisco, 1899; aged 52; died, November 19, from nephritis.

John D. McDonald, St. Joseph, Mo.; University of Pennsylvania, Philadelphia, 1894; aged 50; died in a hospital in St. Joseph, November 19.

John Edward Foscue, Jamestown, N. C.; University of Maryland, Baltimore, 1901; aged 42; died suddenly, November 16, from heart disease.

Enoch Knox White, Florence, Miss.; Vanderbilt University, Nashville, Tenn., 1891; aged 63; died, November 14, from cerebral hemorrhage.

Robert H. Porter ✠ Chicago; Cincinnati College of Medicine and Surgery, 1874; aged 76; died, December 1, from carcinoma of the liver.

Anna Maria Gutzwiller McBean, Los Angeles; University of California, Berkeley and San Francisco, 1907; aged 37; died, November 13.

Robert W. Smith, Rochester, N. Y.; University of Buffalo, N. Y., 1872; aged 81; a veteran of the Civil War; died, November 8.

William Erwin, Philadelphia; Hahnemann Medical College and Hospital, 1877; aged 65; died, November 21, from nephritis.

Walter C. Browning, Philadelphia; Jefferson Medical College, 1878; aged 64; died, November 23, from cerebral hemorrhage.

Adelbert Millett, Belfast, Maine; Dartmouth Medical School, Hanover, N. H., 1888; aged 62; died, November 17.

Adrian Hazen Hoyt, Concord, N. C.; Dartmouth Medical School, Hanover, N. H., 1887; aged 59; died, October 20.

Albert E. Salter, Buffalo; Hahnemann Medical College and Hospital, Chicago, 1891; aged 73; died, November 12.

Mark Israel Knapp ✠ New York; University of the City of New York, 1894; aged 52; died, November 26.

Banks Withers, Morrisville, N. C.; University of Maryland, Baltimore, 1896; aged 50; died, November 6.

Abram Sharples, Goshen, Ore.; Jefferson Medical College, 1864; aged 79; died, November 20.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE FRAUD ON THE PUBLIC AND ON THE PROFESSION

PHYSICIAN'S STOCK IN PRESCRIPTION PRODUCTS

The letter that follows comes from a physician who feels that he has a grievance regarding a company in which he holds stock:

"In 1914, I bought some stock of the —— —— Company, and in 1917 bought some more stock in the same company. I notice that the company advertises in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, and I believe it does this not so much to acquaint the medical profession with its product, as to acquaint physicians with its name in order that its stock salesmen can keep on unloading more stock to members of the medical profession.

"The company gets the doctors' money through the sale of stocks, it gets its products on the market with the doctors' assistance and through their influence, and it looks to me as if the doctors were getting very little in return, as the dividend checks have been few and far between since I have known anything of the company.

"It is not my idea to criticize the product; but I do believe and feel that the stockholders are entitled to a square deal from a company which in turn is expecting so much from them, and again I feel that the publishers of THE JOURNAL should be made aware of these conditions so that they do not either consciously or unconsciously foster a concern that is depriving the physician of his hard-earned money.

"If this letter is unfair, I am willing to be shown otherwise. Kindly publish it in THE JOURNAL, omitting my name and address."

The company to which our correspondent refers puts out a proprietary product prescribed by physicians and used by the public. Some years ago the company in question advertised its product in THE JOURNAL until its stock-selling scheme was brought to the attention of THE JOURNAL; the advertisements were then rejected. Some years later, on evidence that the company had discontinued its stock-selling methods to physicians, its product was again admitted to the advertising pages of THE JOURNAL. Our correspondent says that he believes that the physicians who hold stock in this company "are entitled to a square deal." What about the public? Is it getting a square deal when physicians are financially interested in the products that they may be called on to prescribe? Is the average layman's confidence in the medical profession likely to be enhanced when he learns that the physician to whom he went for treatment has a financial interest in the therapeutic agent which was prescribed? Our correspondent's complaint seems to be, not against the company for selling stock to physicians, but because "the dividend checks have been few and far between," the assumption being that had the dividends come regularly, there would have been no complaint. It cannot be too often emphasized that it is against public interest and scientific medicine for physicians to be financially interested in the sale of products which they may be called on to prescribe for the sick. It is perfectly true that there are many physicians who would not consciously permit financial considerations to warp their judgment; but it is not humanly possible to remain unbiased in cases of this sort. It is conceivable that a judge on the bench might make every effort to dispense impartial justice in a suit in which one of the parties was a firm in which he, the judge, had financial interest. Nevertheless, it would be obviously improper for such a judge to try a case of this kind. Yet, in this supposititious case the only harm that could result would be of a financial nature. In the case of the doctor, the harm is not to the public's purse but to the public's health.

MORE MISBRANDED NOSTRUMS

Linonine.—In February, 1920, the Kerr Chemical Company, Danbury, Conn., consigned a quantity of Linonine to a concern in Philadelphia. Some of this was seized by the federal authorities on the charge that it was misbranded. When analyzed in the Bureau of Chemistry it was found to be an emulsion composed essentially of linseed, cinnamon and eucalyptus oils with methyl salicylate and glycerin. The trade package bore such claims as these:

"Pulmonary diseases, Consumption, Chronic Coughs . . . Chronic Bronchitis, The After Effects of La Grippe, Wasting Diseases, Rickets, Scrofula, Whooping Cough, Rheumatic and Strumous Diseases, General Debility, Etc. . . . Linonine is unsurpassed as a strengthener, builder, blood renewer, and for affections of the throat and lungs."

These claims were declared false and fraudulent and applied with a knowledge of their falsity for the purpose of defrauding purchasers. In May, 1920, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 7717; issued Nov. 11, 1920.*]

Valentine's Sarsaparilla Compound.—The Allan Pfeiffer Chemical Company, St. Louis, Mo., shipped in May, 1919, a quantity of "Valentine's Sarsaparilla Compound with Potassium Iodide." The product when analyzed by the Bureau of Chemistry was found to consist essentially of a solution of sugar in dilute alcohol, with a small amount of potassium iodid and with extractives from sarsaparilla, gentian and a laxative vegetable drug. The stuff was falsely and fraudulently represented as an effective blood purifier and a treatment, remedy and cure for pimples, eruptions, sores, boils, skin diseases, etc. In May, 1920, a plea of guilty was entered and the court imposed a fine of $25 and costs.—[*Notice of Judgment No. 7746; issued Nov. 11, 1920.*]

Olive Branch.—In May, 1920, the federal grand jury returned an indictment against Nellie M. Ellis, trading as the Olive Branch Remedy Co. of South Bend, Indiana, on the charge of misbranding. When analyzed by the Bureau of Chemistry "Olive Branch" was found to consist of suppositories containing chiefly cacao butter, soap, borax, alum and a trace of unidentified alkaloid. The nostrum was falsely

and fraudulently represented as an effective treatment, cure and specific for all female diseases, despondency, "tired feeling of helpless, hopeless existence," cancerous trouble, falling of the womb, stomach trouble, etc. In May, 1920, the defendant pleaded guilty and was fined $100 and costs.—[*Notice of Judgment No. 7740; issued Nov. 11, 1920.*]

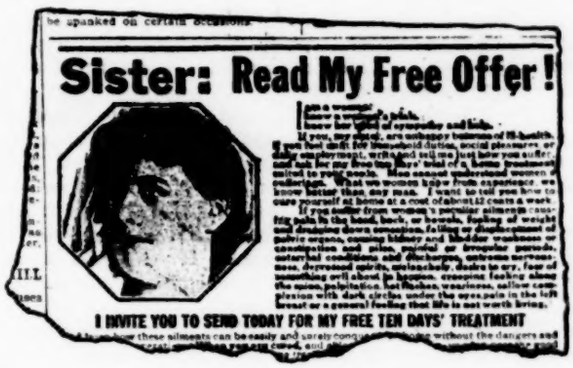
Prince's Pills, Liniment and Tru-Vigor Nerve Tablets.—The Boston Drug and Chemical Company, Boston, Mass., shipped in August, 1917, a quantity of these products which were misbranded. Analysis of a sample of Prince's Pills by the Bureau of Chemistry showed them to be composed largely or wholly of rhubarb and aloes. They were falsely and fraudulently recommended as a treatment and cure for suppressed, delayed and irregular menstruation and effective to produce a miscarriage.

"Prince's Liniment" was found by the Bureau of Chemistry to contain ammonia, camphor, turpentine oil and a small percentage of alcohol. It was falsely and fraudulently recommended as a treatment and cure for neuralgia, diphtheria, rheumatism, sciatica, erysipelas, corns, warts, headache, earache and several other things. It was also falsely labeled as containing wintergreen and capsicum when as a matter of fact it contained neither of these substances.

"Prince's Tru-Vigor Nerve Tablets" were found by the Bureau of Chemistry to consist essentially of strychnin and a greenish, acid resin probably from damiana. These tablets were falsely and fraudulently recommended as a treatment and cure for "lost manhood," sleeplessness, despondency, all nervous diseases, hysteria, impotency, diseases of the prostate gland, etc.

In October, 1919, the Boston Drug & Chemical Co. entered a plea of *nolo contendere* and was fined $25.—[*Notice of Judgment No. 7720; issued Nov. 11, 1920.*]

Some Mrs. Summers Nostrums.—In May, 1920, a United States Grand Jury returned an indictment against Gabriel R. Summers, South Bend, Ind., charging shipment by him of a



number of nostrums labeled as from Vanderhoof & Co., South Bend, Ind. These preparations were "Mrs. Summers' Absorbent Pile Remedy," "Mrs. Summers' Womb, Ovarian & Kidney Tonic & Vitalizer Tablets" and "Mrs. Summers' Heart, Brain and Nerve Pills."

Analysis of the pile remedy showed it to be a suppository containing chiefly cacao butter, borax, alum, tannin, camphor and small amounts of hydrastin and belladonna. It was falsely and fraudulently represented as an effective treatment and cure for piles.

The "Womb, Ovarian and Kidney Tonic and Vitalizer Tablets" were found to consist essentially of plant material, a small amount of aromatics like cinnamon and cloves, together with iron oxid and carbonate of lime. These tablets were falsely and fraudulently represented as an effective remedy and cure for all diseases affecting the womb, ovaries and kidneys and as a vitalizer to all female organs and structures and that it was an effective cure for all weaknesses and suffering in women.

The "Heart, Brain and Nerve Pills" were found by the Bureau of Chemistry to consist essentially of reduced iron, asafetida, valerate of zinc and nux vomica. These pills were falsely and fraudulently represented as an effective treatment and cure for nervousness, restlessness, loss of vitality and energy, diseases of the heart, brain and nerves, etc. In May, 1920, Summers pleaded guilty and was fined $100 and costs.—[*Notice of Judgment No. 7747; issued Nov. 11, 1920.*]

Some Cal-Sino Nostrums.—The Cal-Sino Company, a corporation that traded under the name W. H. Smaw & Co., Baltimore, Md., shipped in March, February and June, 1918, a quantity of articles "Compound Syrup of Hypophosphites," "Bromo Febrin," "Hystoria," "Aromatic Cod Liver Oil," "Red Cross Kidney and Liver Regulator," "White Pine and Tar Syrup" and "Boro-Thymine" which were misbranded. Analysis of samples of the "Compound Syrup of Hypophosphites" showed that it contained no ferric hypophosphites nor glycerin and only traces of calcium and manganese hypophosphites. As the preparation was an official one and differed from the standard of strength, quality and purity required, the product was declared adulterated and misbranded. Furthermore, it was declared misbranded because it was falsely and fraudulently described in the trade package as a treatment, remedy or cure for consumption, weak lungs, all forms of general debility, etc.

The "Bromo Febrin" was labeled as containing 4 grains of acetanilid to each powder. As a matter of fact it contained

30 per cent. less than this amount and contained no bromids or bromin compounds. The preparation was, therefore, declared adulterated and misbranded.

The "Red Cross Kidney and Liver Regulator" when analyzed by the federal chemists was found to be a sweetened water-alcohol solution containing as active ingredients potassium acetate, methyl salicylate, eucalyptus, podophyllum and jaborandi. It was falsely and fraudulently claimed to be an effective remedy for Bright's disease, diabetes, jaundice, headache, all affections of the kidneys and liver, etc.

"Hystoria" was found to be a nostrum of the alcohol type containing over 16 per cent. of alcohol and small amounts of plant extractives with traces of alkaloids in amounts too small to identify. Hystoria was labeled as containing 32 per cent. alcohol when, as a matter of fact, it contained only half this amount. Further, it was falsely and fraudulently described as a treatment, remedy, cure and preventive for painful, suppressed or scant menstruation, hemorrhage of the womb, all uterine diseases, etc.

"Smaw's Aromatic Extract of Cod Liver Oil Emulsion" was found on analysis to contain no cod-liver oil but to consist essentially of sugar, aromatics, compounds of phosphorus, calcium, magnesium and iron, plant extractives, and over 12 per cent. of alcohol. This preparation was labeled as containing 17 per cent. of alcohol and was falsely and fraudulently recommended as a remedy for consumption and other pulmonary affections and as a body builder in cases of deficient nutrition and wasting diseases.

The "White Pine and Tar Syrup" when analyzed by the Bureau of Chemistry was found to contain ammonium chlorid, plant extractives with indications of white pine bark and balm of Gilead buds, oil of tar, 5.75 per cent. of alcohol and 2.19 minims of chloroform to each fluid ounce. The product was falsely and misleadingly labeled as to ingredients and was falsely and fraudulently recommended as a remedy and cure for chronic asthma, croup, whooping cough, etc.

"Boro-Thymine" was found to be a water-alcohol solution containing about 2 per cent. boric acid with small amounts of benzoic acid, methyl salicylate, thymol, menthol and eucalyptol. It was falsely and fraudulently recommended as a remedy and cure for scarlet fever, diphtheria, gonorrhea, leucorrhea, etc.

In January, 1920, the defendant pleaded guilty and the court imposed fines aggregating $300 and costs.—[*Notice of Judgment No. 7719; issued Nov. 11, 1920.*]

Correspondence

CONGENITAL DISLOCATION OF THE HIP

To the Editor:—In The Journal, Nov. 27, 1920, in the department of Current Medical Literature, appears this abstract from the *Presse médicale*, Paris, Sept. 22, 1920:

Recent Progress in Treatment of Congenital Luxation of the Hip Joint.—Calot cites as three important acquisitions: (1) The discovery in young children that the true acetabulum in 90 per cent. of the cases belongs to the ischium and not to the ilium portion of the hip-bone. (2) The discovery that the position to be given to the head and neck of the femur must be horizontal and transverse throughout the whole treatment, the rotation exactly equal to the angle of torsion of the upper end of the femur, and the abduction exactly equal to the angle of the slope of the neck. (This is the complement of the angle made by the axis of the neck with a straight line passing from the center of the head to the center of the bicondyle axis of the knee.) (3) The criterion of the cure by the appearance in the roentgen-ray picture of a large and solid horizontal vault of bone at the point of the true roof of the original acetabulum, that is, at the upper limit of the Y cartilage. This bone vault begins to form in the plaster cast. Twenty-two illustrations accompany the article, and a table showing abduction to correspond to different angles of the slope of the neck.

Verily, a little learning is a dangerous thing! Lest credulous readers be misled by this quotation, I offer the following comment:

1. Ever since good roentgenograms have been made it has been known that the greater part of the acetabulum lies below the horizontal line dividing the ilium from the ischium. This is the first discovery which Calot has made!

2. The necessity for the "horizontal and transverse" position of the head and neck of the femur depends on the security of the replacement, and on that alone. There can be no fixed rule. Sometimes the head and neck may look upward and inward, and sometimes look downward and inward instead of the usual approximately horizontal position. The direction of the first position in which the hip is placed must depend on the security of the replacement, and the period during which it is held there is not a definite one. Rules governing young cases cannot be applied to the older cases.

Neither Calot nor any one else has proved that there *is* any torsion of the neck. If there is, to measure it is impossible; to estimate it is useless; for it really has no bearing on the treatment.

3. "The criterion of the cure" is that the replaced head stays in the acetabulum. The development of a "roof" from the acetabulum over the head is no assurance that the head will stay in; nor the absence of such a "roof" that the head will slip out. When the weight is not carried by the bony frame with the head in the acetabulum, but only by muscular and ligamentous support before the dislocation is replaced, the ossification of both the head and the rim of the acetabulum is delayed and their real shape does not show in the roentgenogram; but as soon as the bones feel the stress of necessity after the head has been replaced, osseous deposit is hastened and the femoral head and the acetabulum begin to show in the roentgenogram more and more of their real shape.

In a word: All of Dr. Calot's wonderful "discoveries" have been well known to the orthopedic surgeons of this country for years. No one has heretofore troubled himself to write learnedly about matters that are of no real importance in the diagnosis and treatment of congenital dislocation of the hip.

John Ridlon, M.D., Chicago.

FIVE CASES OF GLIOMA OF THE RETINA IN ONE FAMILY

To the Editor:—I submit a report on some rather interesting cases of glioma of the retina in one family. Among eleven brothers and sisters, five have had glioma of the retina. Of the five, three sisters and two brothers, only one brother is alive; he is now 12 years old and enjoys good health, although blind. Both his eyes were enucleated, the left when he was 2 years old and the right six months afterward. In these patients eight enucleations, five operations for recurrences and in the patient still living the resection of the palpebral conjunctiva and suture of the eyelids have been performed. Recently the father has died from gastric cancer. The mother is in good health, and the other children, one of them 16 years old, are also in good health.

L. Comas, M.D., Santiago de Cuba.

"CREDULITY AND CURES"

To the Editor:—In a communication (The Journal, Oct. 9, 1920, p. 1017), Dr. Robert T. Morris quickly disposes of all recent theories of the neuroses. "Virchow, the liberator of medicine from mysticism, told us that an objective cause lay behind every subjective symptom." With all respect to the founder of cellular pathology, some views have changed since Virchow, and we may mention serology, psychanalysis and endocrinology as modern instances. Mortmain may be a valuable principle in law, but its place in medical science is doubtful. "Objective causes" is a phrase which today covers chemical reactions as well as histologic changes, and there cannot be much doubt that unconscious thinking or, if you prefer, emotional reactions to sense impressions or cerebral processes (Crile), with the resultant disturbances in the vege-

tative sphere, is as objective as a blood clot or a callus. Some of us surgeons may think that Freud is a mystic. Some of us, enamored of the pragmatism of the jackknife, treated hysteria by removing the uterus or ovaries. The truth inherent in endocrinology, as in psychanalysis, cannot be obliterated either by the vagaries of some fanatic supporters or by the stand-pat attitude of some, equally fanatic, opponents.

PERCY FRIDENBERG, M.D., New York.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

HEALTH OF EMPLOYEES IN MATCH MAKING—PHOSPHORUS POISONING

To the Editor:—Can you inform me whether or not the manufacturing of matches is at present considered to be a very insanitary occupation for the employees? I have read something concerning this matter in the past, but I am not informed as to the present-day conditions. Please advise me where I may obtain this information.

CHARLES F. READ, Dunning, Ill.
Managing Officer, Chicago State Hospital.

ANSWER.—The manufacture of matches was formerly considered an insanitary occupation because of the prevalence of phosphorus poisoning which resulted from the almost universal use of poisonous white phosphorus in the paste forming the match heads. As a result of a conference at Berne in 1906, an international convention, signed by a number of European powers and their colonies, provided for the prohibition of the manufacture, sale and importation of white phosphorus matches. Virtually every civilized country has since passed prohibitory laws. By act of Congress in 1912, a tax of $2 per hundred is levied in this country on matches made with white phosphorus, and their importation and exportation is prohibited under heavy penalties. These restrictive measures have definitely eliminated the use of white phosphorus in the manufacture of matches, and the occupation has consequently lost its greatest hazard. From the available literature it would seem that conditions in match factories are good at present. A survey made in Ohio shows that this is the case in that state.

Books on occupational diseases discuss this:

Kober, G. M., and Hanson, W. C.: Diseases of Occupation and Vocational Hygiene, Philadelphia, P. Blakiston's Son & Co., 1916.
Thompson, W. G.: The Occupational Diseases, Their Causation, Symptoms, Treatment and Prevention, New York, D. Appleton & Co., 1914.
Rambousek, J.: Industrial Poisoning from Fumes, Gases and Poisons of Manufacturing Processes, New York, Longmans, Green & Co., 1913.

The Quarterly Cumulative Index lists:

Legge, T. M.: Report of Cases of Phosphorus Necrosis, *J. Indust. Hyg.* **2**: 50 (June) 1920.
Spinner, J. R.: Phosphorus Poisoning, *Deutsch. med. Wchnschr.* **45**: 912 (Aug. 14) 1919.
Simonds, J. P.: The Mechanism of the Protective Action of Carbohydrate Diet in Phosphorus and Chloroform Poisoning, *Arch. Int. Med.* **23**: 362 (March) 1919.

CULTURAL CHARACTERISTICS OF LACTOBACILLI

To the Editor:—Please inform me as to the cultural characteristics of *Bacillus acidi-lactici* (Bulgarian), the type ordinarily used in preparing artificial buttermilk. I am especially interested in the sugar reactions.

LEON S. LIPPINCOTT, M.D., Vicksburg, Miss.

ANSWER.—We take it that our correspondent has in mind the so-called lactobacilli, of which the Bulgarian bacillus (*B. bulgaricus*) is the best known representative. The organism called by the name *Bacillus acidi-lactici* belongs to quite a different group, best termed *Bacillus aerogenes*, and closely related to *Bacillus coli*. The lactobacilli are large rods occurring singly or in filaments, producing large amounts of acid in milk, sometimes more than 3 per cent. Young cultures are gram positive. The lactobacilli grow sparingly on laboratory mediums. Milk or mediums prepared from milk, such as whey agar, are good culture mediums. The presence of dextrose or lactose favors growth. The work of different investigators on fermentative powers shows marked lack of agreement. It is apparently true that mannite, saccharose and maltose are attacked by some strains and not by others. According to Rahe (*J. Infect. Dis.* **15**:14, 1914), *Bacillus bulgaricus* does not ferment maltose in broth, and may be differentiated from other acid-resisting organisms by this character. The fermentative activities of the whole group, in correlation with other characters, probably deserve more attention than they have received.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ALABAMA: Montgomery, Jan. 11. Sec., Dr. Samuel W. Welch, Montgomery.
ARIZONA: Phoenix, Jan. 4-5. Sec., Dr. Ancil Martin, 207 Goodrich Bldg., Phoenix.
COLORADO: Denver, Jan. 4. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.
DELAWARE: Dover, Dec. 14-16. Sec., Reg. Bd., Dr. P. S. Downs, Dover.
DISTRICT OF COLUMBIA: Washington, Jan. 11-13. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.
HAWAII: Honolulu, Jan. 10-13. Sec., Dr. J. E. Strade, 1041 Alakea St., Honolulu.
INDIANA: Indianapolis, Jan. 11. Sec., Dr. W. T. Gott, Crawfordsville.
MARYLAND: Baltimore, Dec. 14. Sec., J. McP. Scott, 137 W. Washington St., Hagerstown.
MINNESOTA: Minneapolis, Jan. 4-6. Sec., Dr. Thomas McDavitt, 539 Lowry Bldg., St. Paul.
NEW MEXICO: Santa Fe, Jan. 10-11. Sec., Dr. R. E. McBride, Las Cruces.
NEW YORK: New York City, Albany, Syracuse and Buffalo, Jan. 24-27. Asst., Professional Examinations, Mr. Herbert J. Hamilton, State Education Bldg., Albany.
NORTH DAKOTA: Grand Forks, Jan. 4. Sec., Dr. George M. Williamson, Grand Forks.
OKLAHOMA: Oklahoma City, Jan. 11-12. Sec., J. M. Byrum, Shawnee.
OREGON: Portland, Jan. 4-6. Sec., Dr. Urling C. Coe, 1208 Stevens Bldg., Portland.
PENNSYLVANIA: Philadelphia, Jan. 11-15. Sec., Dr. Thomas E. Finnegan, Harrisburg.
RHODE ISLAND: Providence, Jan. 6-7. Sec., Byron U. Richards, Providence.
SOUTH DAKOTA: Pierre, Jan. 18. Director, Division of Medical Licensure, Dr. H. R. Kenaston, Bonesteel.
VIRGINIA: Richmond, Dec. 14-17. Sec., J. W. Preston, 511 McBain Bldg., Roanoke.
WASHINGTON: Spokane, Jan. 4-6. Sec., Dr. William M. O'Shea, Spokane.
WEST VIRGINIA: Charleston, Jan. 13. Sec., R. T. Davis, Charleston.
WISCONSIN: Madison, Jan. 11-13. Sec., Dr. John M. Dodd, Ashland.

OSTEOPATH NOT RECOGNIZED BY HOSPITAL

At Memphis, Tenn., recently, the superintendent of the Baptist Memorial Hospital refused to permit an osteopath to treat patients in the hospital. Later a patient was admitted, supposedly under the care of a regular member of the staff, but who, it turned out, was the patient of the osteopath who was treating the patient. When he learned the facts, the superintendent ordered that the osteopath be refused further admission to the hospital. The osteopath endeavored to secure an injunction prohibiting the superintendent from stopping his treatment of the patient, claiming that he, the osteopath, was regularly licensed and that, since the hospital was a public institution erected and maintained by public funds, its superintendent had no right to bar him from practicing in it. The attorney for the hospital argued that the hospital was responsible to the public and had the right not only to make such regulations as would enable it to determine the character of the work being done, but also to bar any man who did not meet its requirements. Other cases were cited in which decisions had been rendered in favor of the hospitals. The judge then rendered a decision denying the osteopath an injunction.

Wisconsin June Examination

Dr. John M. Dodd, secretary, Wisconsin State Board of Medical Examiners, reports the oral, written and practical examination held at Milwaukee, June 29-July 1, 1920. The examination covered 14 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 33 candidates examined, 32 passed and 1, an osteopath, failed.

Eleven candidates were licensed by reciprocity. Twenty-five candidates were licensed by endorsement of credentials. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Chicago College of Medicine and Surgery	(1910) 75, (1916)*		
Northwestern University Medical School	(1920) 85, (1920)**		83, 90
Rush Medical College	(1911) 80, (1920) 86, (1920)**		82, 87
University of Illinois	(1920) 83,		83, 86
State University of Iowa College of Medicine	(1920)		84
Johns Hopkins University	(1919)		82, 88
University of Michigan Medical School	(1897)		79
Columbia University	(1920)		84
Marquette University	(1920) 84, 84, (1920)** 83, 83, 84, 84, 84, 84, 85, 85, 85, 86, 87, 88		
Milwaukee Medical College	(1898)		80

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Loyola University	(1916)		Missouri
Rush Med. College (1901), North Dakota (1918), (1920, 3)			Illinois
St. Louis University School of Medicine	(1919)		Missouri
Washington University	(1919)		Missouri
Columbia University	(1918)		New York
University of Buffalo	(1918)		New York
University of Pittsburgh	(1913)		Penna.

College	ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement with
Hahnemann Medical College, Chicago	(1913),	(1917)	U. S. Army
Rush Medical College	(1915) U. S. Army,	(1917)	U. S. Navy
University of Illinois	(1913),	(1917)	U. S. Army
Johns Hopkins University	(1910),	(1914)	U. S. Army
Tufts College Medical School		(1917)	U. S. Navy
Univ. of Mich. Homeopathic Med. School		(1915)	U. S. Army
University of Minnesota		(1914)	U. S. Army
Barnes Medical College		(1909)	U. S. Army
Albany Medical College	(1901),	(1907)	U. S. Army
Fordham University		(1918)	U. S. Army
N. Y. Homeo. Med. Coll. & Flower Hosp.	(1915),	(1916)	U. S. Army
Jefferson Medical College		(1918)	U. S. Army
University of Pennsylvania		(1915)	U. S. Navy
University of Pittsburgh		(1916)	U. S. Army
Vanderbilt University		(1912)	U. S. Army
Baylor University		(1917)	U. S. Army
Marquette University	(1913) U. S. Army,	(1917)	U. S. Navy
Wisconsin College of Physicians and Surgeons		(1908)	U. S. Army

* No grade given.

** Completed four years' work; will receive diploma on completion of internship.

Ohio June Examination

Dr. H. M. Platter, secretary of the Ohio State Board of Medical Examiners, reports the oral, written and practical examination held at Columbus, June 8-11, 1920. The examination covered 10 subjects and included 105 questions. An average of 75 per cent. was required to pass. Of the 160 candidates examined, 156 passed and 4 failed. Ninety-nine candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Howard University	(1919)		76
Chicago College of Medicine and Surgery	(1916)		84.5
Loyola University	(1916) 76.4,	(1919)	78.9
Rush Medical College	(1919) 83.7,	(1920)	81.2
Johns Hopkins University	(1916) 85.5, (1918) 80.8,	(1920) 82.4,	85.8
Harvard University	(1903) 77.5,	(1917)	86.2
Eclectic Medical College, Cincinnati	(1920) 76.9, 75.7, 76.7, 78.5, 79.3, 79.8, 79.8, 80.2, 81, 81.3, 81.5, 81.9, 82.1, 82.3, 82.6, 83, 83.6, 85.3, 85.4, 85.9, 85.9, 87.5.		76.3,
Ohio State University College of Homeo. Medicine	(1920)		81.3
Ohio State University College of Medicine	(1920) 80.5, 80.8, 82.7, 82.7, 83.5, 83.5, 84.1, 84.2, 84.2, 84.5, 84.6, 84.7, 84.9, 84.9, 85.2, 85.2, 86.5, 87.1, 87.9, 88.4, 85.4.		75.4,
University of Cincinnati College of Medicine	(1920 78.9, 79, 79.3, 79.3, 78.8, 78.8, 79.5, 79.5, 80.4, 80.5, 80.6, 80.6, 81.1, 81.1 81.6, 81.8, 81.8, 81.9, 82.3, 82.4, 82.7, 82.7, 82.8, 83.2, 83.5, 83.5, 83.8, 83.6, 84.2. 84.3, 85, 85.1, 85.2, 85.2, 85.3, 85.5, 86.2, 88, 88.7.		78.2,
Western Reserve University School of Medicine	(1917) (1920) 75, 75.7, 76.7, 77.5, 77.6, 78.7, 78.9, 78.9, 79.9, 80.3, 80.4, 80.8, 80.9, 81.2, 81.4, 81.5, 81.9, 81.9, 82, 82.2, 82.4, 82.4, 82.5, 82.5, 82.5, 82.6, 82.7, 83.8, 83.8, 84.1, 84.2. 84.6, 84.9, 85, 85.1, 85.1, 85.3, 85.3, 85.4, 87.6, 87.6.		79,
University of Oklahoma	(1918)		76.7
Hahnemann Med. College and Hospital Philadelphia	(1919)		78.4
Jefferson Medical College	(1920) 76.2, 80.3, 81.4, 81.6, 81.8,		82.1
University of Pennsylvania	(1917) 82.7, (1918)		82.6
University of Pittsburgh	(1919)		78.7
Meharry Medical College	(1913) 75, (1919)		77.4
University of Tennessee	(1917)		81.1
Vanderbilt University	(1916) 79.7, (1919)		80.6

College	FAILED	Year Grad.	Per Cent.
Chicago College of Medicine and Surgery	(1917)		72.5
Eclectic Medical College	(1920)		73.8
Ohio State University of Homeopathic Medicine	(1919)		73.5
Meharry Medical College	(1919)		72.3

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
George Washington University	(1906)		Dist. Colum.
Georgetown University Medical School	(1912)		Dist. Colum.
American Medical Missionary College	(1902)		Alabama
Bennett College of Eclectic Medicine and Surgery	(1906)		Illinois
Chicago College of Medicine and Surgery	(1917)		Illinois
Northwestern University	(1918)		Illinois
Rush Medical College	(1903) (1905) Indiana, (1917), (1919), (1920, 2)		Illinois
College of Physicians and Surgeons, Chicago	(1897)		Illinois
University of Illinois	(1913), (1919, 2)		Illinois
Indiana University	(1916), (1917), (1918), (1919)		Indiana
State University of Iowa Coll. of Homeo. Medicine	(1910)		Iowa
Kentucky School of Medicine	(1898)		W. Virginia
University of Louisville	(1889) (1910) Virginia, (1911) Texas, (1917) Indiana.		Kentucky
Tulane University Medical College	(1910)		Louisiana
Baltimore Medical College	(1903)		New York
College of Physicians and Surgeons, Baltimore	(1904)		Maryland
Johns Hopkins University	(1915) West Virginia, (1917)		Penna.
University of Maryland	(1897) (1915), (1917) West Virginia, (1917) New York, (1918) Maryland.		Penna.
Harvard University	(1895) Maine, (1916)		New York
Detroit College of Medicine and Surgery	(1915)		Michigan
University of Michigan Medical School	(1894) (1912, 2) Michigan, (1916) Michigan.		Illinois
Missouri Medical College	(1898)		Oklahoma
St. Louis College of Physicians and Surgeons	(1904)		Indiana
St. Louis University	(1911), (1917), (1918), (1919, 3)		Missouri
Washington University	(1902) Illinois, (1912)		Missouri
John A. Creighton Medical College	(1914) Utah, (1915)		Nebraska
Albany Medical College	(1910)		New York
Columbia University	(1915) New Jersey, (1916)		New York
Cornell University College of Medicine	(1906)		New York
Long Island College Hospital	(1915)		New York
Medical Department of the University of New York	(1889)		New York
New York University Medical College	(1896)		New York
Syracuse University College of Medicine	(1907)		New York
University of Buffalo	(1914) Pennsylvania, (1919)		New York
New York Homeo. Medical College and Hospital	(1906)		Penna.
Cleveland Medical College, Homeopathic	(1894)		Penna.
Eclectic Medical College, Cincinnati	(1906) (1912) Kentucky, (1916) Nebraska.		W. Virginia
Ohio-Miami Medical College	(1910)		Colorado
University of Wooster	(1876)		Minnesota
Hahnemann Med. Coll. and Hosp. of Phila.	(1902), (1906)		Penna.
Jefferson Medical College	..(1882), (1915), (1916), (1917) Pennsylvania;	(1912)	Iowa
Medico-Chirurgical College of Philadelphia	(1915)		Penna.
University of Pennsylvania	(1914)		New York
University of Pittsburgh	(1911, 2)		Penna.
Meharry Medical College	(1905, 3), (1911) (1916) Missouri, (1918) Kentucky.		Alabama
University of Texas	(1912), (1913)		Texas
Medical College of Virginia	(1913), (1916)		Virginia
University of Virginia	(1894)		New York
University of Vermont	(1910), (1915, 2)		Vermont
Marquette University	(1916)		Wisconsin
University of Athens	(1910)		Penna.

Utah July Examination

Dr. C. L. Olsen, acting secretary, Utah State Board of Medical Examiners, reports the oral examination held at Salt Lake City, July 6-7, 1920. The examination covered 16 subjects and included 100 questions. An average of 75 per cent. was required to pass. Eight candidates were examined, all of whom passed. Five candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
University of Illinois College of Medicine, Chicago	(1920)		84.7
Harvard University	(1920)		90.9
Columbia University	(1920)		88.8
Long Island College Hospital	(1919)		89.3
Western Reserve University	(1919) 85.9,	(1920)	83.6
University of Pennsylvania School of Medicine	(1920)		88.9
Wisconsin Eclectic Medical School, Milwaukee	(1896)		75

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Northwestern University Medical School, Chicago	(1909)		Illinois
Rush Medical College	(1920)		Illinois
University of Louisville	(1909)		Kentucky
University of Pennsylvania	(1873)		Penna.
University of Naples	(1893)		*Italy

* Graduation not verified.

Vermont June Examination

Dr. W. Scott Nay, secretary, Vermont State Board of Medical Registration, reports the written examination held at Burlington, June 29 to July 1. The examination covered 9 subjects and included 90 questions. An average of 75 per cent. was required to pass. Sixteen candidates were examined, all of whom passed. One candidate was licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
University of Vermont College of Medicine	(1913) (1916) 87.1, (1917) 87.4, (1920) 78, 78.8, 83.9, 84.1, 86.8, 87.3, 87.5, 87.6, 87.7, 88.1, 88.3, 89.3, 89.3		84.9

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Harvard University	(1915)		Maine

Book Notices

MAIN STREET. The Story of Carol Kennicott. By Sinclair Lewis. Cloth. Price, $2. Pp. 451. New York: Harcourt, Brace and Howe, 1920.

The physicians of literature—what an assembly they would make! So intimately are physicians bound up with the everyday life of people in general that almost every author has brought them into his works: To mention a few: Dr. Watson, the intimate companion of Sherlock Holmes; the physicians painted by Checkhov, himself a physician; the kindly doctor of "Rab and His Friends"; old Dr. McClure, sympathetically portrayed in "Beside the Bonnie Briar Bush"; "K" of Mrs. Rhinehart, and quite recently F. Brett Young's "Young Physician." It has remained for Sinclair Lewis, however, to take the ordinary physician of any small town in the Middle West and to put him properly into a book. Briefly, the story describes how a young woman with ideals—with a capital "I"—married a young physician in Gopher Prairie, Minnesota, and then set out to cure the town, to broaden it and to make it artistic. Her husband, Dr. Kennicott, is first and foremost a physician. He does not care for art; he reads only an occasional newspaper; although a steady student of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION he is not especially interested in reading anything else; he knows medicine; he admires the great physicians and surgeons of his time; he is a solid and leading member of his society. But it is a narrow society, and his wife, whom he does not understand, would like to broaden it. The job is too big for her. She tries to break away. In the end she returns to Gopher Prairie and, though still retaining a firm belief in her ideals, is content to devote herself to her husband and her children. This brief outline of the plot tells little of the significance of the book. Mr. Lewis has seen the faults of American small town life. His atmosphere is honest and accurate. His father, brother and an uncle are physicians, and he has imbibed at first hand the medical life of such a community as he describes. Note for example the description of the Gopher Prairie drug store:

> Dyer's Drug Store, a corner building of regular and unreal blocks of artificial stone. Inside the store, a greasy marble soda-fountain with an electric lamp of red and green and curdled-yellow mosaic shade. Pawed-over heaps of tooth brushes and combs and packages of shaving-soap. Shelves of soap-cartons, teething-rings, garden-seeds and patent medicines in yellow packages—nostrums for consumption, for "women's diseases"—notorious mixtures of opium and alcohol, in the very shop to which her husband sent patients for the filling of prescriptions.

Here are some comments by Dr. Kennicott on Dr. Westlake, an old practitioner of Gopher Prairie:

> "Will! What do you think of Dr. Westlake?"
> "Westlake? Why,"
> "I noticed him on the street today."
> "Was he limping? If the poor fish would have his teeth X-rayed I'll bet nine and a half cents he'd find an abscess there. 'Rheumatism' he calls it. Rheumatism, hell! Wellllll—" A profound and serious yawn. "I hate to break up the party, but it's getting late, and a doctor never knows when he'll get routed out before morning." (She [Mrs. Kennicott] remembered that he had given this explanation, in these words, not less than thirty times in the year.)

Lewis has accurately caught the vernacular of the careless physician: his physicians invariably "operate their patients" instead of operating on them. Particularly displaying the author's insight is Dr. Kennicott's response to one of his woman patients with an "imaginary" ailment. She has been reading the magazines and she knows about "psychoses" and wants him to "order a change in a woman's way of living so she can get on a higher plane———." Kennicott answers:

> "Wait! Wait! Whoa-up! Wait now! Don't mix up your Christian Science and your psychology! They're two entirely different fads! You'll be mixing in socialism next! You're as bad as Carrie, with your 'psychoses.' Why, Good Lord, Maud, I could talk about neuroses and psychoses and inhibitions and repressions and complexes just as well as any damn specialist, if I got paid for it, if I was in the city and had the nerve to charge the fees that those fellows do. If a specialist stung you for a hundred-dollar consultation-fee and told you to go to New York to duck Dave's nagging, you'd do it, to save the hundred dollars! But you know me—I'm your neighbor—you see me mowing the lawn—you figure I'm just a plug general practitioner. If I said 'Go to New York,' Dave and you would laugh your heads off and say, 'Look at the airs Will is putting on. What does he think he is?'"

Kennicott, like many of our best physicians, in large cities as well as in small communities, is a conscientious, self-sacrificing man, but at heart a provincial. Physicians who read this book will like it, even though every now and then it causes an inward wincing because of some of the satirical thrusts at their faults. The wives of medical men will certainly enjoy it, since it will make some of the conscientious physicians look around and take notice. "Main Street," for the physician, is more than a first class piece of fiction—it is a commentary on the social side of medical life.

DISEASES OF THE INTESTINES AND LOWER ALIMENTARY TRACT. By Anthony Bassler, M.D., Professor of Gastro-Enterology, Fordham University Medical College. Cloth. Price, $7. Pp. 660, with 286 illustrations. Philadelphia: F. A. Davis, 1920.

The author first discusses history taking, emphasizing the fundamental importance of the patient's complaints. The methods of physical, laboratory, instrumental and roentgenologic examination are described fully. There are many excellent roentgenograms, both of the normal and the pathologic conditions of the intestinal tract. Numerous diet lists in use by the author in his private practice are given in detail. The subjects of intestinal obstruction and appendicitis are treated thoroughly. The last few chapters of the book are devoted to diseases of the rectum. Many subjects appear to be considered with too great detail, and others with too little. It is hardly possible for the great majority of practitioners of medicine, to whom the book is dedicated, to carry out a complete chemical and bacteriologic examination of the stools, and the equally complete qualitative and quantitative urinalysis that the author recommends. The work would require almost a week for its completion. Fifteen pages are devoted to the vaccine treatment of intestinal intoxication. Eleven different types of vaccine are recommended, depending on the type of organisms isolated from the stools. If intestinal toxemia were really the cause of the many and varied conditions that the author would lead us to think, and if the efficacy of these vaccines could be established, the isolation of the various bacterial causes and the preparation of a vaccine would warrant its use. This, however, the author does not succeed in proving, particularly in the case of rectal injections of foreign colon bacillus vaccine. Contrasted with the number of pages devoted to the subject of vaccines is the scant two pages devoted to catarrhal jaundice. There is no consideration given to the subject of differential diagnosis. In fact, aside from acute intestinal obstruction, the subject of differential obstruction is not gone into save for the mentioning of the possible conditions that may have to be considered in the diagnosis.

MASSAGE AND EXERCISE COMBINED. A Permanent Physical Culture Course for Men, Women and Children. Health Giving, Vitalizing, Prophylactic, Beautifying. A New System of the Characteristic Essentials of Gymnastic and Indian Yogis Concentrating Exercises Combined with Scientific Massage Movements, with 86 Illustrations and Deep Breathing Exercises. By Albrecht Jensen. Cloth. Price, $4 net. Pp. 93. New York: The Author, 1920.

What the "patent medicine" is to pharmacotherapy, "health cults" and "systems" are to nonpharmacal therapeutics. Jensen's book is of this type. "The Permanent Physical Culture Course for Men, Women and Children—Health-Giving, Vitalizing, Prophylactic, Beautifying" is a combination of self-massage with active movements, with resulting sacrifice of some of the advantages of each. The massage manipulations described are chiefly effleurage (stroking) and tapotement (beating), while petrissage (kneading) does not enter into this "system" of physical culture, for the evident reason that autopetrissage is a difficult and tiresome procedure. Nor is friction brought into use, though both of these manipulations are of importance for obtaining the best results in various pathologic conditions amenable to massage treatment. Furthermore, the muscular relaxation indispensable for deep effects from massage is impossible, owing to the fact that the individual is in the standing posture. The soothing and relaxing effect obtainable from proper massage is, of course, also out of the question when the patient manipulates himself. From the exercises, on the other hand, one of the chief purposes of gymnastics—the development of useful coordinations—is taken away. As these massage exercises require con-

centration, they are unsuitable for purposes of recreation. Still, Jensen maintains that their combined application is "physical culture in its most scientific and perfected form." Like other exponents of "systems," he does not hesitate to make great promises. Thus, he states that a woman "by care, massage and exercises of the abdominal muscles, after having recovered from her accouchement, could regain her former figure and appearance"; that these exercises "will preserve youth and retard old age"; and so on. Though they may not do all that is claimed for them, the exercises described have their virtues. They will reduce fat persons and may build up thin ones. It has been said that massage is a good means of reducing obesity in the masseur. Hence, if an obese person could be induced to perform on himself the manipulations described by Jensen—and some of these would be physically impossible for a really fat person—he might accomplish the desired result.

Marine Hygiene and Sanitation. A Manual for Ships' Surgeons and Port Health Officers. By Gilbert E. Brooke, M.A., L.R.C.P., D.P.H., Port Health Officer, Singapore. Cloth. Price, $4.50. Pp. 409, with illustrations. New York: William Wood and Company, 1920.

Many scientific books, and certainly all those intended as manuals, are dry reading. It is therefore a pleasure to find a book on hygiene which is as fascinating as an adventure tale. Dr. Brooke's sense of humor and his broad outlook on questions relating to marine sanitation are evident from preface to appendix. The volume opens with a chapter on the ship's surgeon. This is followed by a description of the structure of a ship, with emphasis on the things of most importance to a surgeon or port health officer. The next chapters deal with ship ventilation, water and food supplies, and ship vermin. Quarantine inspection is considered, and then follows a detailed discussion of ship-borne diseases, including etiology, symptoms and methods of spread. Most emphasis is laid on the four infections regarded by the author as the major ones from the standpoint of a port health officer: cholera, plague, yellow fever and smallpox. In the succeeding chapters, considerable space is given to inspection and disinfection of ships, and the book concludes with a discussion of the duties of a port health officer. Brooke's views on beriberi are of some interest as coming from a man who has seen a great amount of the disease in the Orient. He is convinced that beriberi is a bacterial infection, perhaps superimposed on the deficient diet. We are gratified with the author's remarks concerning the efficiency of the quarantine organization of the United States Public Health Service. The book is of considerable interest to all those concerned with public health work, whether or not connected with port quarantine or inspection.

The Diagnosis and Treatment of Peripheral Nerve Injuries. Medical Research Council, First Report of the Committee Upon Injuries of the Nervous System. Paper. Pp. 59. London: His Majesty's Stationery Office, 1920.

In this report an attempt has been made "to enunciate the general principles of treatment, and to indicate the variations demanded by the special physiology and anatomy of each of the more important nerves." The report is divided into four parts and an addendum. The first part is devoted to nerve injuries in general, and consists of methods of examination of motor, sensory, vasomotor, secretory and trophic functions, the diagnosis of nerve injury, complications, and operative and nonoperative treatment. Within a few pages may be found a summary of the most important deductions derived from the experience of many workers. The second part deals with special nerves. The diagnosis, level of lesion, treatment, and signs of returning function are described as related to the musculospiral nerve, the median nerve, the ulnar, musculocutaneous, circumflex and sciatic nerve, and the brachial plexus. In this part there are several excellent illustrations. The subject matter is free from controversial points, and consists of well digested, clearly expressed conclusions derived from personal experience and the literature. The third section deals briefly with the histologic examination of injured peripheral nerves, and the fourth with pain with injuries of peripheral nerves. The report is comprehensive, easily understood, and exceptionally accurate. It should be of great value to all medical officers concerned with peripheral nerve injuries, and offers to the physician in a small volume considerable material that would otherwise necessitate many sources of information.

The Link Between the Practitioner and the Laboratory. A Guide to the Practitioner in his Relations with the Pathologic Laboratory. By Cavendish Fletcher, M.B., B.S., M.R.C.S., Director, Laboratories of Pathology and Public Health, London, and Hugh McLean, B.A., B.C., D.P.H., Assistant Pathologist, Laboratories of Pathology and Public Health, London. Paper. Price, $1.50. Pp. 91. New York: Paul B. Hoeber, 1920.

This is a handy pocket manual intended to inform practitioners what help they can expect to secure from the laboratory in the diagnosis or treatment of the diseases indexed, together with brief instructions as to the proper method of collection of material in each case. The directions are clear and the advice, sound.

Miscellany

SANITATION IN WORKSHOPS AND FACTORIES

The annual report of the chief inspector of factories and workshops of London for 1919 points out that during the war the standard of safety and sanitation declined, owing to pressure of work, shortage of staffs, and difficulties in obtaining materials and labor for repairs or renewals. But in 1919 a great step forward was made, not only in recovering lost ground but also in advancing to a higher standard. The higher level of sanitation and comfort required in works producing munitions and other war material has tended to produce better surroundings, with greater regard for cleanliness. But on the part of the workers there is no great demand for washing and sanitary conveniences, even when the trade is obviously dirty and unpleasant. The whole question of heating, especially in large factories, is receiving much attention, and in nearly every district the unit system is being introduced. In this system each unit consists of a bar which forces the air under pressure downward over steam-heated pipes and so distributes the heated air at floor levels, where the effect is most felt by workers. In order to obviate the "dry" feeling in the air, sometimes noted in shops thus heated, one firm introduces steam from jets near the roof and the workers maintain that the atmosphere is improved. Another interesting development for reducing the high temperature associated with many industries is the douche system of air cooling, in which a douche of cold moving air is blown by means of fans into the space where men are at work, producing a cooling and refreshing effect. Whereas formerly the men often left work in the early afternoon, owing to the excessive temperature, they now put in full time without fatigue. In regard to industrial diseases, the Whitley Councils (consisting of employer and employees) made themselves felt during the year. Conferences were held with representatives of the manufacturers and operatives in different trades to consider improvements in hygiene. The statistics show an increase of lead poisoning as compared with 1918, but that was unavoidable with the return to ordinary trade. The industry in which there is now the greatest danger of plumbism is not the manufacture of white lead or pottery, or coach painting, but the manufacture of electric accumulators. Experiments have been made in this country in the direction of accomplishing by machinery the operation of pasting in this industry—in which the larger proportion of cases occur—but they have not been so successful as in America. Among the few cases of plumbism reported in the pottery industry, the proportion of fatalities is high being 28 per cent. in the five years 1915-1919, compared with the proportion 7.2 per cent., to all reported cases.

The Anthrax Disinfection Committee was appointed in 1919 to advise on the scheme for disinfecting infected materials. Experience has shown that death in anthrax is now a rare event, provided the necessary treatment is available and the disease recognized early. This may be due to the serum treatment combined with enforcement of physiologic rest, the need for which is well established. Grave doubts are cast on the utility of the excision of external anthrax, save perhaps in the earliest stages.

Medicolegal

No Recovery for Services Rendered Without License

(O'Bannon v. Widick et ux. (Mo.), 220 S. W. R. 853)

The Supreme Court of Missouri, Division No. 2, says that the plaintiff sued the defendants, husband and wife, to recover for professional services as a mechanotherapist, rendered by him to the defendants and their family at their request. He obtained a judgment in the circuit court, which was reversed by the Springfield (Mo.) Court of Appeals, 198 S. W. 432. The evidence was sufficient to warrant a finding in his favor, if he was authorized by law to perform the services rendered and charge for them. He admitted that his demand was for services rendered in the treatment of ailments and diseases of the human body, and that he had no license as a physician or surgeon which authorized him to render the services sued for. On being asked what profession or line he was following, he replied, "I am covering the field as a practitioner of drugless healing, and take the general field of dietetics, scientific food, the adjustment of the spine, and a correspondence course in osteopathy; two years in the practice and study of medicine twenty-eight years ago. It is what is called mechanotherapy." That was followed by the question: "You have also stated you are practicing what is known as the chiropractic method?" the answer to which was "Yes; except the medicine; I use food and scientific work." The Springfield Court of Appeals held that the plaintiff, without a license to practice, could not recover for the services that he rendered, under the foregoing circumstances. Then the cause was transferred to the supreme court, on account of the conflict between the opinion mentioned above and that in *Smythe* v. *Hanson*, 61 Mo. App. 285, decided by the St. Louis Court of Appeals. On a careful consideration of the questions presented, the supreme court is of the opinion that the decision of the Springfield Court of Appeals properly declared the law of the case, which is adopted as the opinion of the supreme court. In 8 Elliott on Contracts (1913-1918 Supplement) p. 126 et seq., Section 646 and following, that opinion is strongly approved, and a number of recent decisions from other jurisdictions are cited in support of it.

Right to Restrain Insane Persons

(Maxwell v. Maxwell (Iowa), 177 N. W. R. 541)

The Supreme Court of Iowa, in reversing a judgment that was rendered in favor of the defendant, on account of the jury's having been erroneously instructed, says that the plaintiff and the defendant were father and son, and that the former, about 78 years of age, sued the latter for damages for alleged false arrest and imprisonment in wrongfully causing the sheriff to take the plaintiff into custody and transport him to the Soldiers' Home at Marshalltown. The general rule is that where it is made to appear that one is not capable of rational self-control, and by reason thereof his own safety or the public safety is imperiled, one who by relationship or otherwise is the natural or proper custodian of an insane person may lawfully restrain him in some proper place for treatment, for the good of the patient or for the protection of the public, and this without warrant and without judicial proceedings. The right to restrain an insane person is not governed by the general law which provides that no one shall be deprived of life, liberty or property without due process of law. Restrain under such conditions does not offend against the constitutional inhibition. The court finds no authorities going so far as to say that one sustaining the close relationship which this defendant sustained to this plaintiff is not justified in temporarily restraining him of his liberty, when such restraint is made necessary for his own protection or the public safety. The consensus of judicial opinion seems to be that, while every one is ordinarily entitled to direct his own actions, yet where one is in fact insane, and there are manifest probabilities of injury to himself or the public if permitted to go unrestrained, even though those have not been manifest, he may be restrained by any one for a reasonable time in the interests of the public good. The authorities limit the right to restrain an insane person of his liberty to proof of actual insanity and immediate danger to himself or to the public, and they unite in holding that the right to restrain for his own benefit and for the protection of others is not questioned, but is discussed as analogous to cases in which one is in delirium of fever and would break away from his attendants, or one who is afflicted with a contagious disease. However, the right of one to arrest and restrain another of his liberty on the ground of insanity is dependent on the existence of the fact on which the right is predicated. A citizen has not the right to arrest any member of society who may be deranged in his mind, and therefore, in order to justify his act, when charged with wrongful arrest, he must show, not only that the defendant was insane at the time, but also that to permit him to go at large imperiled his own safety or the safety of the public. It is not sufficient to show that he was lacking in mental capacity or had hallucinations. Nor is it sufficient to show in cases of this kind probable grounds for suspecting that the person was insane or probable reason for believing that his being at large would imperil the safety of the public. The one restraining him must justify it by proving the fact on which his right to restrain rested. In other words, one who arrests another and restrains him of his liberty, on the theory that he is incapable of rational self-control, assumes the burden of showing that fact and the imminent necessity for the restraint. This is the true rule, and the sane and safe rule in matters of this kind.

A Supreme Court's Pronouncement Against the Fly

(Williams v. Sweet (Me.), 110 Atl. R. 316)

The Supreme Judicial Court of Maine, in granting the defendant a new trial after the plaintiff had recovered a verdict in this action to recover the price which the defendant had contracted to pay for certain rooms for two weeks, in the month of August, but which the defendant and his party had abandoned after four days, says that the crux of the case was found in answer to the inquiry: Was the defendant justified in leaving? It will be conceded that a hotel, when it holds itself out to the public as a place of resort for rooms and board, carries with such offer an implication that it will furnish its patrons with accommodations that are compatible with the standing of the hostelry, the prices paid, and the class of people invited to become its guests. These "accommodations" include apartments, table, dining service, and especially such sanitary conditions as are calculated to render the surroundings inviting and wholesome rather than repulsive and deleterious to health. The complaint in this case was that at the table at which the defendant and his party were accustomed to sit the flies were so numerous and became so obnoxious that their presence created an intolerable condition in violation of the obligation of the landlord to furnish suitable and sanitary dining facilities as implied in his contract. The real issue involved a single question of fact: Was the defendant justified in leaving the hotel on account of the fault of the plaintiff, in allowing flies to collect at the defendant's table in such numbers as to become insanitary and repulsive? The court thinks that he was.

It is a matter of common knowledge that the common house fly has come to be regarded by the enlightened understanding, not only as one of the most annoying and repulsive of insects, but one of the most dangerous in its capacity to gather, carry and disseminate the germs of disease. He is the meanest of all scavengers. He delights in reveling in all kinds of filth; the greater the putrescence, the more to his taste. Of every vermin, he above all others is least able to prove an alibi when charged with having been in touch with every kind of corruption, and with having become contaminated with the germs thereof. After free indulgence in the cesspools of disease and filth, he then possesses the further obnoxious attribute of being most agile and persistent in ability to distribute the germs of almost every deadly form of contagion. It is a matter of common knowledge that yellow fever was formerly the scourge of certain localities in our own and other countries. For years no one mistrusted or was able to detect the cause. But one day it was announced that a certain kind of mosquito by its sting communicated the germs of this dread disease. The knowing introduction of one of these mosquitoes

now would constitute a criminal offense. While the house fly has not yet been regarded as fatal as a mosquito, he, nevertheless, is now attracting the serious attention of sanitary and health departments all over the country; in fact, all over the world. The dangers with which his presence is fraught are also a matter of common knowledge, and hence of judicial notice. The court finds that the bibliographic list on this subject in the last twelve years embraces 136 publications in books and bulletins issued in many countries and printed in different languages.

That the defendant left the plaintiff's hotel on account of the obnoxious presence of flies there can be no doubt, and the court thinks that he was justified in so doing. Accidentally, flies may invade any dining room, public or private; but the presence of flies in a dining room regularly in numbers, however small, is a menace not to be encouraged or tolerated. A single fly may so contaminate food, milk or a dish as to communicate a dangerous or even deadly disease like tuberculosis. To the person, therefore, who knows its dangers, flies about the food, in numbers however small, are at once repulsive, nauseating and dreaded. A single fly may be reeking with filth and covered with a million noxious germs. To those informed on the subject, this case presents a matter of importance and serious consideration. Reasonable conditions of sanitation are always to be measured by the fatality of the diseases liable to be communicated as the result of the lack of such conditions.

Position of One Not Calling Physician as Witness

(Bernhardt v. City & S. Ry. Co. (D. C.), 263 Fed. R. 1009)

The Court of Appeals of the District of Columbia holds that there was no error in excluding evidence offered by a plaintiff in a personal injury case to show that a physician who had attended him refused to make a further examination for the purpose of testifying for him. The court says that, it having appeared in the record that the physician had treated the plaintiff, it would have been proper for the defendant to argue that the failure of the plaintiff to call the physician as a witness justified the inference that, if called, his testimony would have been adverse to the plaintiff's case. It was therefore proper for the plaintiff to overcome that presumption, if he could, by showing why the physician did not testify. But a statement to the effect that the physician refused to appear in court was immaterial, since the plaintiff could have coerced his appearance by the service of a subpena. It might be that it would have been a dangerous experiment, as suggested by counsel for the plaintiff, to put the physician on the stand under the circumstances; but the plaintiff was not required to do that. He had his choice, either to call him or to suffer the effects of the presumption which the law would raise in the event that he was not called.

Liability from Loss of Drainage Tube Not Shown—Evidence

(Burris v. Titzell (Iowa), 177 N. W. R. 557)

The Supreme Court of Iowa, in reversing a judgment that was rendered in favor of the plaintiff, says that he divided his petition into two counts. The first count charged as a basis for recovery simply that the defendant, a surgeon, negligently, carelessly and unskilfully inserted a drainage tube in such a way and with such fastenings that, as a result of the defendant's negligence in fastening it, it escaped into the pleural cavity of the plaintiff and caused him serious injury. The plaintiff sought to make the defendant liable for all consequences that followed that act. Among these he alleged that it became necessary subsequently to perform an operation to remove the tube, which operation was not only painful, but very injurious. But that operation could be considered only in determining the damages which the plaintiff was entitled to on account of the substantive negligence charged, and it must affirmatively appear that the defendant was guilty of that negligence before he could be charged with the consequences that followed the act charged to be negligent. The evidence showed that a thread was used that would not easily be absorbed, rot or give way, and that the thread was fastened by the use of a needle to the body of the plaintiff, and that this was the usual and a proper way. The only evidence there was that tended in any way to negative this was that the tube did not remain where it was fastened, but escaped into the body of the plaintiff, although not until some ten days after the operation, during which time the wound was dressed by nurses furnished by the hospital, over whom the defendant had no control. How the tube escaped was not shown. To lay a foundation for liability under the issue tendered, it must affirmatively appear and there must be evidence in the record that would justify the jury in saying that the escape was due to the negligent manner in which the tube was fastened to the body at the time of the operation. If it was thought that it was the duty of the defendant, after the operation, to watch and see that the stitches did not become loose, it should have been so alleged. The patient sustained a somewhat different relationship to this surgeon, so far as nurses were concerned, than he would have sustained if he had been a private patient under the charge of the surgeon and of nurses selected and placed in charge by the surgeon. The jury might well find that the defendant properly fastened the tube, and was guilty of no negligence in the manner in which he fastened it, but that the interns or nurses whose duty it was to dress the wound were negligent and careless in the dressing, and through this the tube became loosened from its moorings and slipped into the body. An instruction was erroneous from which the jury could draw the inference that they were justified in finding actionable negligence on the part of the defendant in permitting the nurses to dress the wound, and that he was responsible for their acts in dressing the wound, if he permitted them to dress it, as it was not charged that he was negligent in permitting the nurses and interns to dress the wound. To hold the defendant liable on this first count, the court must enter the field of speculation with no proof of any substantial fact involving him in negligence.

The second count of the plaintiff's petition was predicated on alleged negligence of the defendant in an operation performed in an attempt to remove the tube. The plaintiff called no expert witnesses to testify to whether the manner in which this operation was performed was approved by the medical profession or not. But, assuming that the defendant had before him the roentgenogram previously taken, knew exactly where the tube was located in the plaintiff's body, and, in an effort to remove it, cut the body at such a point as would clearly suggest to the mind of the ordinary layman that the wound inflicted was grossly in excess of what was reasonably necessary to reach the point where the tube was located, the jury might well find the defendant guilty of negligence. This was a case wherein liability might rest and be shown without the testimony of expert witnesses.

The defendant contended that certain prior attempts to remove the tube were unsuccessful because the plaintiff was unable then to take an anesthetic. That was not negatived by the fact that a year later the plaintiff was able to take an anesthetic without suffering any ill effects from it.

Not a "Surgeon" and Not a "Surgical Operation"

(Maupin v. Southern Surety Company (Mo.), 220 S. W. R. 20)

The Springfield (Mo.) Court of Appeals says that the word "surgeon," unqualified, in the mind of the ordinary individual, means one possessed of such knowledge of the human body, and such other knowledge as the laws of our land require, and possessed of such skill in the use of instruments, that he may be expected with reason to correct or relieve some unnatural condition of the human body. The court does not think that the mass of mankind would connect the idea of a veterinarian with the word "surgeon," as that word is generally used. In the case before the court, an accident insurance policy provided, among other things, that the insurer, the defendant, would be liable in the event that a legally qualified physician or surgeon, while holding a necropsy or performing a surgical operation, actually cut or wounded himself, and by reason of such cutting or wounding and simultaneously therewith was inoculated with poison. The insured was a veterinarian, who, while vaccinating some hogs and while endeavoring to slit the ear of one to show that it had been treated, accidentally cut his finger, from which blood poisoning resulted, causing his death. The plaintiff, who was the

beneficiary under the policy, contended that the insured was a "surgeon," and that the operation which he was performing when injured was a "surgical operation," as those terms were used in this provision of the policy. The court, however, holds otherwise, and reverses a judgment that was obtained by the plaintiff against the defendant insurer.

Society Proceedings

COMING MEETINGS

American Physiological Society, Chicago, Dec. 30.
Porto Rico, Medical Association of, Ponce, Dec. 13-14.
Radiological Society of North America, Chicago, Dec. 16-17.
Society of American Bacteriologists, Chicago, Dec. 28-30.
Southern Surgical Association, Hot Springs, Va., Dec. 14-16.

SOUTHERN MEDICAL ASSOCIATION

Fourteenth Annual Meeting, held at Louisville, Ky., Nov. 15-18, 1910

(Concluded from page 1592)

Static Difficulties of Lower Extremities as Influenced by Circulatory Disturbances

DR. THOMAS MADDEN FOLEY, Washington, D. C.: Many unrelieved orthopedic conditions are due to circulatory disturbances, and may be relieved by proper treatment. Deep varices in venae comites and atypical angioneurotic diseases of the lower limb are more frequent than are usually thought. Appropriate systemic treatment for central circulatory disturbances must not be neglected.

Seminal Vesiculitis

DRS. EDWARD WILLIAM WHITE and R. B. H. GRADWOHL, Chicago: No undue haste need be exercised in advising operations until all palliative measures have been exhausted. Vesiculectomy is the operation of choice in the hard sclerotic vesicles, whereas, vesiculotomy and drainage have been entirely satisfactory in pus cases and acute catarrhal cases, chronic fibrous, sclerotic cases, unrelieved by treatment, and vesical cases causing obstruction to the higher urinary tract.

Hemorrhage from Kidney

DR. H. A. FOWLER, Washington, D. C.: The nature of the treatment to be employed in any given case depends naturally on the character and amount of hemorrhage. When the demand for immediate control of bleeding is not urgent, conservative measures should be given a thorough trial before one resorts to radical surgical intervention. Bleeding ceases at times after simple ureteral catheterization. The bleeding usually recurs. Injection of the pelvis with 1 per cent. silver nitrate solution is often followed by cessation of bleeding. I have employed the intramuscular injections of horse serum with varying results. If conservative measures fail to stop bleeding, and the patient's condition justifies it, nephrotomy or decapsulation may be performed, provided the kidney on exposure does not show a gross pathologic condition. In cases of severe uncontrollable hemorrhage, nephrectomy is the only operation to be considered.

Transplantation of Cartilage

DR. W. T. COUGHLIN, St. Louis: For transplantation into the skull in cranioplasty, the transplanted portion should be thick enough to afford protection. The cartilage should be removed with its perichondrium intact, because when split the piece curves with its perichondral surface concave. This curving is often of advantage.

Postoperative Thrombophlebitis

DR. FRANK K. BOLAND, Atlanta, Ga.: The treatment of thrombophlebitis consists in rest, elevation of the part, and the application of cold during the acute stage, and heat afterward. Opium is often necessary to relieve pain. It is well for nurses to know that postoperative pain in the legs should not be subjected to massage until the cause of the pain is known. Such well intended, but misdirected, treatment may produce pulmonary embolism.

Breast-Fed Babies Who Cry at Night

DR. EUGENE ROSAMOND, Memphis, Tenn.: Habitual crying in breast-fed babies at a particular time each day—usually the late afternoon and at night—is a symptom of hunger. Supplemental and complemental feeding is the remedy. Complemental feeding should be given only with a cup and spoon.

Administration of Digitalis to Children with Diphtheria

DR. HUGH MCCULLOCH, St. Louis: Diphtheria toxin, either experimentally or clinically, produces anatomic and functional changes in the structures of the heart by direct action. The administration of digitalis to patients with diphtheria is contraindicated because there would result a summation of effects in the same heart. This summation constitutes a real danger to the life of the patient. Measures other than the administration of digitalis should be adopted for providing rest for the heart.

Dietetic and Medical Treatment of Gastric and Duodenal Ulcers

DR. SEALE HARRIS, Birmingham, Ala.: The treatment of gastric and duodenal ulcer should be thorough and systematic, with attention to details. Absolute obedience of the patient is important. Rest in bed for a period of three or four weeks, preferably in a hospital or infirmary, should be insisted on, and the patient should be under direct observation from six to eight weeks and should report symptoms to his physician for six months or a year, whether treated medically or surgically. Every patient with gastric or duodenal ulcer should be examined thoroughly for evidences of focal infections in the nasal passages or sinuses, and for infected tonsils. In treating gastric and duodenal ulcers either medically or surgically, it should be remembered that it is a secondary condition, one which is likely to return unless the underlying causes are sought for and removed.

Gastric Lavage

DR. GEORGE M. NILES, Atlanta, Ga.: In chronic gastritis, with excessive mucus, a lavage two or three times weekly is generally of aid. The lavage habit into which some patients lapse is an unfortunate one. These individuals, having learned to use the tube themselves, and finding that the emptying of an overdistended stomach will bring relief from epigastric distress, make it a practice to wash out the stomach with the first qualm. Some of these misguided sufferers wash out their stomachs from two to four times daily, bringing their bodies to the verge of caloric bankruptcy by their unwise zeal. Under certain circumstances it is allowable to teach the patients how to administer to themselves a gastric lavage when they live in isolated localities, or when it is impracticable to see the physician at the proper time. Such instruction should be leavened with caution, and the patient informed of the dangers that lie in wait for those who fly to the stomach tube not wisely but too often.

Fractional Analysis of Gastric Contents

DRS. JULIUS FRIEDENWALD and ZACHARIAH R. MORGAN, Baltimore: By means of fractional analyses we can study the entire cycle of digestion, as to both the secretory and the motor activity of the stomach, obtain definite information regarding the amount of secretion, analyze the acidity in any period of the cycle of digestion, and follow the effect of an ulcer cure on the hyperacid secretion. Fractional analysis of the gastric secretion is extremely important in all cases of achylia gastrica to differentiate the true achylias from the spurious forms. No pathognomonic curve exists which can be considered as absolutely distinctive of any gastric affection.

Sprue

DR. SIDNEY K. SIMON, New Orleans: Sixty-two patients were treated by Michel with a vaccine; it is claimed that forty-nine were discharged, twelve were improved, and only one died. Vaccine treatment holds out a promising field of therapy for the future. However, the usual dietetic regulations must be observed in order to obtain the best results.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Anatomy, Philadelphia

Nov. 15, 1920, **28**, No. 1

Cytologic Studies of Langerhans' Islets, with Special Reference to Problem of Their Relation to Pancreatic Acinus Tissue. S. Saguchi, Kanazawa, Japan.—p. 1.
Cause of Hypertrophy of Surviving Ovary After Semispaying (Albino Rat) and on Number of Ova in It. H. Arai, Philadelphia.—p. 59.
Gonads of Fowls. I. Hematopoietic Processes in Gonads of Embryos and Mature Birds. J. F. Nonidez, Washington, D. C.—p. 81.

American Journal of Syphilis, St. Louis

October, 1920, **4**, No. 4

*Reaction of Pregnant and Lactating Females to Inoculation with Spirochaeta Pallida. W. H. Brown and L. Pearce, New York.—p. 593.
Standardized Method of Performing Wassermann Test. W. A. Hinton, Boston.—p. 598.
Standardization of Wassermann Reaction. J. A. Kolmer, A. M. Rule and M. E. Trist, Philadelphia.
XII. Titration of Hemolysin and Sensitized Versus Plain Red Blood Corpuscles in Complement Fixation Tests.—p. 616.
XIII. Influence of Heating Serum on Complement Fixation in Syphilis.—p. 641.
XIV. Influence of Temperature and Duration of Primary Incubation on Hemolytic Activity of Complement. J. A. Kolmer and A. M. Rule, Philadelphia.—p. 675.
Cholesterinemia and Wassermann Reaction. E. Henes, Jr., Milwaukee.—p. 685.
Preparation of Amboceptor with Human Erythrocytes. A. H. Sanford, Rochester, Minn.—p. 697.
*Spontaneous Rupture of Heart and Aorta. A. V. St. George, New York.—p. 702.
Syphilis of Genital Organs of Male and Urinary Organs. IV. Scrotum, Testicle, Epididymis, Spermatic Cord, Seminal Vesicles. L. Thompson, Hot Springs, Ark.—p. 706.
Case of Syphilitic Ulceration of Vaginal Vault and Cervix Complicating Pregnancy at Eighth Month, Cured by Antisyphilitic Treatment and Followed by Normal Labor at Full Term. R. A. Bartholomew, Atlanta, Ga.—p. 725.

Reaction of Pregnant and Lactating Females to Spirochaeta Pallida Inoculation.—The results reported by Brown and Pearce show that the reaction of the rabbit to a genital inoculation with *Spirochaeta pallida*, which practically coincides with conception, differs very decidedly from that of the normal animal inoculated in the same way, and that this difference extends through the period of pregnancy and well into the period of lactation. The differences noted are of two kinds: ordinarily, it appears that the defensive mechanism of the pregnant animal is capable of opposing a resistance to inoculations performed at the time of conception such that little or no clinical sign of infection appears—a condition possibly analogous to that on which Colles' law was founded. In other instances, however, slight local lesions and marked constitutional disturbances are produced which suggest an ineffectual resistance to the infection or a breaking down of the defensive mechanism.

Spontaneous Rupture of Heart and Aorta.—Two cases are cited by St. George. One patient, aged 22, had a ruptured gumma, about 2.5 cm. in diameter, on the anterior surface of the left ventricle of the heart near the apex. The tear in the gumma was ragged and extended obliquely through the muscle. In the second case, a man, aged 45, about 1.5 cm. from the ostium of the aorta there was a clean, smooth margined tear which involved the vessel wall through its entire thickness and circumference, with the exception of about 1.5 to 2 cm. The walls of the organ were thin, but smooth and fairly elastic; it was diffusely dilated, but showed no pathologic changes visible to the naked eye.

Annals of Medical History, New York

1919, **2**, No. 4

Sculpture and Painting as Modes of Anatomical Illustration. F. H. Garrison and E. C. Streeter.—p. 305.
Quintessence in Rabelais. D. W. Montgomery, San Francisco.—p. 330.
Thomas Phaer. J. Ruhräh, Baltimore.—p. 334.
Statements of Medical Interest from Life of Benvenuto Cellini. J. Rosenbloom, New York.—p. 348.
Daniel Turner and First Degree of Doctor of Medicine Conferred in the English Colonies of North America by Yale College in 1723. J. E. Lane, New Haven, Conn.—p. 367.
A Neglected Name: Dr. Isaac Senter. W. Abbatt, Tarrytown, N. Y.—p. 381.
Latin Translation of Complete Works of Galen by Andrea Laguna, Spaniard, Strassburg, 1604. D. F. Harris, Halifax, N. S.—p. 384.

Annals of Surgery, Philadelphia

September, 1920, **72**, No. 3

Some Things that Surgeons Stand for. W. W. Keen, Philadelphia.—p. 257.
*Treatment of Chronic Empyema. T. Tuffier, Paris.—p. 266.
*Id. C. A. Hedblom, Rochester, Minn.—p. 288.
*Morelli Method of Aspiration Drainage for Acute Empyema. L. Davis, Boston.—p. 327.
*Abscess of Lung. J. A. Hartwell, New York.—p. 333.
Treatment of Bronchial Fistulas. C. Eggers, New York.—p. 345.
Penetrating War Wounds of Chest. G. J. Heuer, Baltimore; G. P. Pratt, Omaha, and V. R. Mason, Baltimore.—p. 352.
Thoraco-Abdominal Injuries: Some Technical Procedures Developed by War. C. G. Heyd, New York.

Treatment of Chronic Empyema.—Tuffier discusses in detail his experience with this class of case. He says that chronic pleurisies are exceptional when acute effusions are well treated. Chronicity depends on a chronic pulmonary infection or on special anatomic peculiarities. Costal resection in the treatment of chronic empyema should be reduced to the minimum. Closure of the surgical incision and pleural decortication should be preceded by disinfection of the cavity and then gives success which was formerly unknown. Ninety-one cases are analyzed.

Treatment of Chronic Empyema.—In forty-nine of 150 cases of empyema at the Mayo Clinic prior to 1910 the Estlander operation was performed; in nine the Schede resection, and in one the Delorme decortication. One death occurred following a Schede operation. The 210 patients with empyema had more or less extensive rib resections. A Schede operation was done in six instances, a decortication in seven, and Ransohoff's discission of the pleura in one. There were fourteen deaths; one followed a decortication. During a little more than two years, 150 patients with chronic empyema have been treated in the clinic. Eight of these patients had sinuses only, some of which, however, were fairly extensive. The others had chronic cavities varying in capacity from 50 to 2,500 c.c. One hundred and seventeen of the patients had been operated on elsewhere. Most of the others came with large accumulations of pus, variously diagnosed. Unresolved pneumonia and abscess of the lung were diagnosed in many of these cases. Fifteen had tuberculous empyema. Judging from the history, clinical findings, and courses, thirteen others may also have been tuberculous.

Hedblom states that the choice of treatment must be made with cognizance of the variable etiology and pathology of the process, and the general condition of the patient. A major procedure is indicated only if nonoperative or less extensive surgical treatment reasonably may be considered less effective. In case of sinuses and small cavities, adequate drainage is usually sufficient to effect a cure with or without short preliminary hypochlorite solution treatment. It is at least open to question whether a radical operation is indicated in these cases for the sole purpose of shortening convalescence at the risk of an appreciably increased mortality. Use of the surgical solution of chlorinated soda is the method of choice in the treatment of the ordinary type of chronic empyema cavity of any size. A pulmonary decortication through a rib spreading exposure after preliminary irrigation is the most conservative treatment for cavities that are not obliterated by drainage or solution treatment alone. A decortication should be done rather than a destructive operation, thereby giving the patient the benefit of the doubt. If the lung does not expand, or if a considerable cavity persists following decortication, a plastic operation is indicated. In the absence of bronchial fistulas and of bleeding, secondarily infected tuberculous empyema may be markedly benefited by antiseptic solution treatment. Adequate drainage is the first indication in cases of empyema cavities which are draining through large bronchial fistulas. Operative closure of bronchial fistulas that persist is necessary to complete healing. A large bronchial fistula is a contraindication to solution treatment. Operative mortality in chronic empyema has been due largely to shock and infection. Reduction of the extent of operation and preliminary sterilization will materially lower this mortality.

Aspiration Drainage for Acute Empyema.—The features of the Forlanini-Morelli method in the treatment of empyema are in brief: the systematic induction of pneumothorax, continuous aspiration drainage combined with irrigation, and an airtight pneumatic jacketed drainage tube of great value in appropriate cases. Davis commends the treatment.

Abscess of Lung.—Hartwell maintains that the pneumococcus is not an important factor in lung abscess; that *Staphylococcus aureus* is often responsible; that abscess of the lung frequently is a primary lesion in that a true pneumonic consolidation as connoted by the name pneumonia does not precede it; that abscess of the lung includes in its pathology a marked degree of surrounding necrosis or even massive gangrene, and that when an empyema ruptures into the lung and discharges through the bronchus the original lesion was a lung abscess which, by its extension, finally found two outlets for its purulent content.

Archives of Dermatology and Syphilology, Chicago

November, 1920, **2**, No. 5

*Protein Sensitization in Production of Skin Disease. H. P. Towle, Boston.—p. 531.
Protein Sensitization in Skin Diseases: Urticaria and Its Allies. W. J. Highman, New York, and J. C. Michael, Houston, Texas.—p. 544.
*Lymphogranulomatosis of Skin in Hodgkin's Disease. H. Fox, New York.—p. 578.
*Lymphatic Leukemia with Primary Manifestations in Skin. J. Butler, Minneapolis.—p. 594.
*Lichen Planus. F. M. Jacob, St. Louis.—p. 607.
Spontaneous Gangrene from Endarteritis Obliterans. A. Ravogli, Cincinnati.—p. 617.
Fatal Case of Recurrent Desquamative Scarlatiniform Erythema; Symptomatology and Probable Etiology. J. Grindon, St. Louis.—p. 623.
*Syphilitic Infection of Central Nervous System of Rabbit. W. H. Brown and L. Pearce, New York.—p. 635.
Vanishing Lesion: A New Problem in Teaching. C. M. Smith, Boston.—p. 639.
Streptodermatitis, Especially in Relationship to Wounds. D. W. Montgomery and G. D. Culver, San Francisco.—p. 649.

Protein Sensitization.—Protein sensitization is now an accepted fact, but, Towle says, while accepting the principles of the cutaneous food test, interpretation must await fuller, better defined understanding of the process of protein sensitization before it can attain its greatest efficiency.

Lymphogranulomatosis of Skin.—The case reported by Fox was one of Hodgkin's disease, presenting tumor-like infiltrations of the skin. As the cutaneous lesions showed a similar structure to that found in lymphatic glands, Fox says it should be classed as one of true Hodgkin's disease of the skin. This case may be added to those that tend to disprove the contention that Hodgkin's disease is related to tuberculosis.

Skin Tumors in Lymphatic Leukemia.—A case of lymphatic leukemia following lymphadenotic skin changes of the circumscribed or tumor type is cited by Butler. The disease began apparently with a throat infection. The first evidence of the disease was the development of the skin tumors. The blood picture was normal at the beginning of the disease. There were no blood changes until all of the skin tumors were formed. Glandular and visceral involvement was not apparent in this case at any time. The skin tumors were made up of collections of large lymphocytes. When all the tumors were formed the blood showed a leukemia for the first time. The lymphocytic deposits showed numerous mitoses. The benzol treatment caused a partial regression and paling of the tumors.

Lichen Planus.—A careful study of the more complete histories of this series of 179 cases gave practically no positive evidence as to either the nervous or infectious origin of this condition. In a small number of cases severe nervous shocks occurred before the eruption, but these were so few in number that Jacob considers them as coincidences. Other patients denied any possibility of nervous shock or worry of any kind. A number of these cases show a beginning in a primary single lesion and some in a single small patch of lesions. The general eruption appeared only after a varying incubation period. A few of these cases showed toxemic symptoms accompanying the rash. These characteristics are comparable to the primary and early manifestations of syphilis. Many features strengthen the opinion of the microbic origin of the disease. Whether the hypothetic virus localizes in other organs than the skin has, of course, not been demonstrated, with the possible exception of the bladder and the gastrointestinal canal. In the treatment, mercury, arsenic and the roentgen ray were found to be efficient.

Syphilitic Infection of Central Nervous System.—The experiments made by Brown and Pearce, although too limited to warrant any broad generalizations in regard to syphilitic infection of the central nervous system, yielded results sufficient to show that such infections may be produced in the rabbit by an ordinary testicular inoculation of well adapted strain of *Spirochaeta pallida*, and that spirochetes may invade the central nervous system at a very early period of the infection.

Archives of Neurology and Psychiatry, Chicago

November, 1920, **4**, No. 5

*Wounds of Head and Compensation Laws. C. L. Dana, New York.—p. 479.
*Choreo-Athetoid and Choreopsychotic Syndromes as Clinical Types or Sequel of Epidemic Encephalitis. L. Archambault, Albany, N. Y.—p. 484.
Compulsion Neurosis in a Child. P. R. Lehrman, New York.—p. 512.
Extracranial Injuries of Multiple Cranial Nerves. L. J. Pollock, Chicago.—p. 517.
*Puncture of Cisterna Magna. J. B. Ayer, Boston.—p. 529.
Coincidence of Cervical Ribs and Syringomyelia. P. Bassoe, Chicago.—p. 542.
*Frequency of Albuminuria with Casts in Epileptics Following Convulsive Seizures. N. Novick, East Norfolk, Mass.—p. 546.

Wounds of Head and Compensation Laws.—Dana suggests that there should be such a modification of compensation laws that the patient receives early expert advice, not only surgical but neurologic; that treatment and reeducational and reconstructive measures be employed early and actively; that the closest possible study be made early to determine the existence of local brain and cord injuries.

Rare Clinical Types of Epidemic Encephalitis.—Cases are cited by Archambault which show that epidemic encephalitis, aside from the usual and familiar clinical picture of midbrain involvement, may yield a number of clinical types closely resembling several well known affections of the nervous system, such as paralysis agitans, poliomyelitis, polyneuritis, cerebellar sclerosis, etc. The combination of choreiform twitchings and acute psychotic disturbance as the salient manifestations is not uncommon and choreo-athetoid or frankly athetoid syndromes may be observed as sequels of the disease.

Puncture of Cisterna Magna.—Ayer urges that puncture of the cisterna magna be employed when it is desirable to reach the upper reservoirs of the cerebrospinal fluid system. This procedure, as carried out forty-three times in twenty patients, has proved of value either for diagnostic or therapeutic purposes. It has been used to advantage in the diagnosis and treatment of cases of postmeningitic subarachnoid block. It has been employed in the treatment of a selected group of cases of cerebral syphilis and in one case of epidemic meningitis. In connection with lumbar puncture it has proved of value in the diagnosis of cord compression from causes other than meningitis.

Albuminuria and Epilepsy.—In a series of sixty cases of epilepsy studied by Novick, two thirds, or 66 per cent., have shown albuminuria with granular casts after every seizure. Two cases of this series which were diagnosed clinically as hysteria, gave no evidence of either albumin or casts in the urine on repeated examinations following epileptiform seizures. An investigation into the frequency of nephritis in epilepsy is suggested.

Boston Medical and Surgical Journal

Nov. 18, 1920, **183**, No. 21

Tuberculosis and Influenza. J. B. Howes, Boston.—p. 596.
*Traumatic Spleens. F. F. Henderson, Boston.—p. 599.
Ruptured Uterus in Previously Cesareanized Patient; Report of Case Where Fetus Remained Intact Within Membranes Following Rupture. C. J. Kickham, Boston.—p. 602.

Rupture of Spleen.—A review made by Henderson of operations at the Boston City Hospital since 1914 shows ten cases of ruptured spleens, eight of which were traumatic and two

spontaneous in typhoid fever. Of these ten patients four survived the operation of splenectomy. A summary of the important facts of the ten cases shows that in only one case was the diagnosis of ruptured spleen made before operation, and that was the case of typhoid. In all cases except one, the pulse at admission ranged from 120 to 160. In all, with the exception of the typhoid, the admission temperatures were subnormal; one as low as 95.8 F. Only one of the patients who recovered was transfused with whole blood; the other three patients had intravenous salt solution. All the patients were under 46 years of age. Seven out of the ten showed no signs of external injury pointing to trauma of the spleen. Two of the remaining three had fractures of the ribs over the spleen; the other having only lower chest tenderness. Henderson emphasizes that immediate operation is essential.

Colorado Medicine, Denver

November, 1920, **17**, No. 11

Why Diphtheria? Reasons and Remedies. J. W. Morgan, Denver.—p. 285.
State Medicine; What is It, and in What Directions Should it be Developed? V. C. Vaughan, Ann Arbor, Mich.—p. 288.
Far Reaching Effects of Rectal Diseases On General Health. A. L. Doublass, Denver.—p. 294.

Delaware State Medical Journal, Wilmington

July, August, September, 1920, **11**, No. 3

National Health Insurance, in Its Relation to Medical Profession. F. L. Hoffman, Newark, N. J.—p. 7.
Foot and Shoe Problem. J. T. Rugh, Philadelphia.—p. 12.
Medicine from a Business Standpoint. D. S. Booth, St. Louis.—p. 19.

Georgia Medical Association Journal, Atlanta

September, 1920, **10**, No. 4

Some Diagnostic Problems of Chest. E. C. Thrash, Atlanta.—p. 79.
Surgical Treatment of Empyema. J. W. Turner, Atlanta.—p. 83.
Treatment of Cancer with Radium. C. C. Harrold, Macon.—p. 87.
Early Diagnosis Means of Reducing Death Rate from Cancer. J. L. Campbell.—p. 90.
Case of Tetanus with Recovery. R. Binion, Milledgeville.—p. 95.

Journal of General Physiology, Baltimore

Nov. 20, 1920, **3**, No. 2

Recovery of Transmissivity in Passive Iron Wires as a Model of Recovery Processes in Irritable Living Systems. R. S. Lillie. Worcester, Mass.—p. 129.
*Theory of Injury and Recovery. I. Experiments with Pure Salts. W. J. V. Osterhout, Cambridge, Mass.—p. 145.
Labyrinth and Equilibrium. III. Mechanism of Static Functions of Labyrinth. S. S. Maxwell, Berkeley, Calif.—p. 157.
*Action of Inhibitory Nerves on Carbon Dioxid Production in Heart Ganglion of Limulus. W. E. Garrey, New Orleans.—p. 163.
*Kinetics of Inactivation of Complement by Light. S. C. Brooks, Boston.—p. 169.
*Mechanism of Complement Action. S. C. Brooks, Boston.—p. 185.
Comparative Studies on Respiration. XIII. Apparatus for Measuring Production of Minute Quantities of Carbon Dioxid by Organisms. M. Irwin, Cambridge, Mass.—p. 203.
Environmental Factors Other Than Temperature Affecting Facet Number in Bar Eyed Mutant of Drosophila. J. Krafka, Jr., Urbana, Ill.—p. 207.
Significance of Hydrogen Ion Concentration for Digestion of Proteins by Pepsin. J. H. Northrop, New York.—p. 211.
Radioactivity and Physiologic Action of Potassium. R. F. Loeb, New York.—p. 229.
Chemical Character and Physiologic Action of Potassium Ion. J. Loeb, New York.—p. 237.
Ion Series and Physical Properties of Proteins. II. J. Loeb, New York.—p. 247.

Recovery of Cells from Injury.—The recovery of cells after exposure to toxic solutions is discussed by Osterhout who studied this problem on *Laminaria*. Equations are developed which make it possible to predict the resistance of the tissue during exposure to sodium chlorid or calcium chlorid as well as the recovery curves after any length of exposure to either of these solutions.

Chemical Reaction in Heart Ganglion Cells and Carbon Dioxid Production.—Garrey found that stimulation of the inhibitory nerves of the neurogenic heart of *Limulus*, which correspond to the vagus nerves of the vertebrate heart, results in a marked diminution of carbon dioxid production in the heart ganglion, while stimulation of the ganglion, leading to increased activity of the heart, leads also to increased carbon dioxid production by the ganglion. This shows that inhibition of the automaticity of this ganglion by the action of its inhibitory nerves consists, not in a process of blocking, but in a diminution of those chemical reactions in the ganglion cells which give rise to the production of carbon dioxid.

Photo-Inactivation of Light.—During photo-inactivation a single disappearing molecular species governs the rate of reaction. This substance, Brooks says, must be primarily responsible for the hemolytic power of serum when it is used as complement.

Mechanism of Complement Action.—The hypotheses is advanced by Brooks that there is present in serum a hemolytic substance which is formed from a precursor (which may resemble lecithin) and is constantly being formed and simultaneously being broken down into inactive products. Both precursor and lysin contain the same photosensitive molecular group. The lytic substance is dependent for its activity on the state of the serum proteins.

Journal of Infectious Diseases, Chicago

November, 1920, **27**, No. 5

Etiology of Acute Gangrenous Infections of Animals: Blackleg, Braxy, Malignant Edema and Whale Septicemia. Studies on Pathogenic Anaerobes. H. H. Heller, San Francisco.—p. 385.
*Effect of Streptococcus Hemolyticus Infection on Reaction of Blood of Rabbits. L. R. Dragstedt, Chicago.—p. 452.
*Agglutination in Influenza. K. Utheim, St. Louis.—p. 460.
*Relation of Different Strains of Influenza Bacilli as Shown by Cross Agglutination and Absorption Tests. H. H. Bell, St. Louis.—p. 464.
*Complement Fixation in Influenza with B. influenzae Antigens. J. V. Cooke, St. Louis.—p. 476.
*Improved Method for Production of Antimeningococcic and Other Serums. J. F. Anderson, New Brunswick, N. J.—p. 482.
*Effect of Roentgen Ray and Thorium X on Pneumococcus and Streptococcus Infections in Mice. H. J. Corper and P. Chovey, Denver.—p. 491.
Primary Toxicity of Certain Preparations from Tubercle Bacilli for Mice and Guinea-Pigs. H. J. Corper and M. Moore, Denver.—p. 499.
*Weight Curves of Tuberculous Guinea-Pigs. Studies on Biochemistry and Chemotherapy of Tuberculosis. XX. L. M. DeWitt, Chicago.—p. 503.

Streptococcus Hemolyticus Infections and Acidosis.—Dragstedt states that experimental *Streptococcus hemolyticus* infections in rabbits produce a relatively marked acidosis, the p_H of the blood varying from 7.65, which is normal, to 7.3 in an extreme case. This does not in itself play any effectual rôle in the mechanism of resistance.

Agglutination in Influenza.—Of thirty strains of the influenza bacillus isolated by Utheim from patients with influenza, eleven, or 36 per cent., gave agglutination with the patient's serum. Seven of these occurred in cases of uncomplicated influenza, and four in cases of influenzal pneumonia. Of the remaining nineteen negative cases, ten were pneumonias. Of thirty strains only one was agglutinated by heterologous serum.

Reaction of Different Strains of Influenza Bacilli.—Bell states that the influenza bacillus represents a heterogenous group of organisms as shown by agglutination and absorption tests. Identical strains occur. No differentiation can be made by these methods between the organisms isolated from normal healthy throats within two months preceding the epidemic and those isolated from the throats of influenza patients. A person may carry in the throat three different strains of this organism at the same time. The morphology alone is unreliable as a means of dividing this group of organisms into subgroups.

Complement Fixation in Influenza.—Complement fixing antibodies were demonstrated by Cooke in the serum of a considerable number of older children and adults convalescent from influenza by the use of *B. influenzae* antigens. These antibodies are much less constantly found in children from 1 to 5 years of age. No definite antigenic relationship could be detected between the sixteen strains of *B. influenzae* with the serum tested. The results indicate that the influenza bacillus is pathogenic and infects many, if not all, patients with influenza. The complement fixation test cannot furnish sufficient evidence, however, to justify the conclusion that *B. influenzae* is the sole etiologic agent in influenza.

Production of Antimeningococcic Serum.—A potent and well balanced antimeningococcic serum was quickly and safely

produced from the horse by Anderson by a method involving the use of antigen, given intravenously, prepared from washed, killed cultures of meningococci. He claims that the severe and even fatal reactions so frequently encountered in the horse after intravenous injections of bacteria are not a manifestation of anaphylaxis, but are due to the presence of a toxic substance in the material injected. This toxic material can be removed by centrifugation and washing, and its removal apparently does not reduce the antigenic properties of the emulsion.

Effect of Roentgen Ray and Thorium X on Infections.—Mice subjected to a single nonlethal exposure to the roentgen ray, capable, however, of producing a leukopenia, or given a single nonfatal injection of thorium X, also capable of causing leukopenia, and shortly thereafter inoculated with pneumococci (four types) and hemolytic streptococci, human and bovine, revealed an increased susceptibility to all of these organisms.

Weight Curve in Tuberculosis.—The more closely the weight curves of tuberculous animals treated by any method adhere to the normal weight curve, the more benefit may be hoped for from the treatment, is the conclusion reached by DeWitt from her observations.

Journal of Urology, Baltimore

October, 1920, **4,** No. 5

*Infiltration Anesthesia of Internal Vesical Orifice for Removal of Minor Obstructions: Presentation of Cautery Punch. J. R. Caulk, St. Louis.—p. 399.
*Action on Gonococcus of Sodium Oleate, Alone and in Combination with Other Drugs. D. M. Davis and E. O. Swartz, Baltimore.—p. 409.
*Hexamethylenamin: Its Quantitative Factors in Therapy. A. T. Shohl and C. L. Deming, Baltimore.—p. 419.
*Tumors Primary in Ureter; Report of Case. W. C. Quinby, Boston. p. 439.

Cautery Punch.—Caulk has modified Young's punch by placing an electric cautery attachment to the distal part of the inner sheath. The instrument is described in detail and likewise the author's use of it. Its simplicity, its freedom from hemorrhage, absorption and other complications, Caulk says, make this the method of choice for the group of prostatic obstructions due to median bar formations or contractures of the vesical neck, and since it should be attended with a negligible mortality, it commends itself as a means of reducing the gross death rate of prostatic surgery.

Action of Sodium Oleate on Gonococcus.—Sodium oleate was found by Davis and Swartz to have a definite germicidal value for the gonococcus. This value is increased, where uncoagulated protein is present, by the addition of 0.5 boric acid. The presence of small, sublethal quantities of sodium oleate, 1:8,000, increases the germicidal action of many drugs against the gonococcus. With others it is without effect. Sodium oleate with boric acid is suggested as an adjuvant to other drugs in the treatment and prophylaxis of gonorrhea.

Hexamethylenamin Antisepsis.—According to Shohl and Deming, liquor formaldehydi solutions of from 1:5,000 to 1:10,000, in two hours, at body temperature, will kill from 80 to 90 per cent. of *B. coli.* The rate of transformation and the amount of formaldehyd formed from hexamethylenamin depend on the hydrogen ion concentration of the urine. The urine must be as acid as p_H 5.4 to obtain from 80 to 90 per cent. antisepsis in two hours.

Mesothelioma of Ureter.—Quinby's case was one of mesothelioma of the left ureter, probably of renal anlage origin. The corresponding kidney was removed but was entirely normal.

Laryngoscope, St. Louis

October, 1920, **30,** No. 10

Vasomotor Disturbances of Nose, with Special Reference to Hay Fever; Report for 1919. G. Selfridge, San Francisco.—p. 611.
Vestibular Vertigo of Nonsuppurative Origin: Factors Bearing on Prognosis: Reports of Cases. P. D. Kerrison, New York.—p. 626.
Combined Operative and Radium Treatment of Malignant Disease of Nasal Accessory Sinuses. H. A. Barnes, Boston.—p. 646.
Healing Processes Following Mastoid Operations. P. Hammond, Boston.—p. 662.
Sixth Nerve Involvement in Purulent Otitis Media. C. E. Perkins, New York.—p. 666.

Maine Medical Association Journal, Portland

November, 1920, **11,** No. 4

Epidemic Encephalitis. I. H. Pardee, New York.—p. 107.
Treatment of Skin Burns. E. H. Risley, Waterville.—p. 117.

Medical Record, New York

Nov. 20, 1920, **98,** No. 21

Gastric Hemorrhage. J. R. Verbrycke, Jr., Washington, D. C.—p. 841.
Suprarenal Action. E. H. P. Ward, White Plains, N. Y.—p. 845.
Employment of Diathermy and Galvanism in Management of Sequels of Occlusion, Partial or Complete, and of Rupture of Cerebral Arteries. E. C. Titus and F. DeKraft, New York.—p. 851.
Hypothyroidism, Infiltration and Hypertension. H. R. Harrower, Glendale, Calif.—p. 854.
Clinical Significance and Therapeutic Indications of Abnormal Blood Pressure. A. S. Blumgarten, New York.—p. 856.
Erythema Nodosum: Its Treatment by Streptococcus Vaccine. Report of a Case. S. A. Levinsohn, Brooklyn.—p. 859.

New York Medical Journal

Nov. 20, 1920, **112,** No. 21

The Unconscious. W. H. R. Rivers, Cambridge, England.—p. 789.
New Psychoanalytical Theory. A. Tridon, New York.—p. 794.
Tricuspid Stenosis and Tricuspid Insufficiency. J. J. Young and L. H. Cotter, New York.—p. 798.
Clinical Notes from First Surgical Division of Fordham Hospital. A. Nicoll and H. M. Rammol, New York.—p. 802.
Cellular Therapeutics. F. T. Woodbury, Edgewood Arsenal, Md.—p. 809.
Cholesterol Thorax; Report of Case. J. H. Barach, Pittsburgh. p. 811.
Underlying Factors in Good Posture. C. W. Crampton, Battle Creek, Mich.—p. 812.
*Case of Erysipelas with Complete Loss of Vision. N. A. Cooper, Bombay, India.—p. 817.
Blood Pressure Cause of Astigmatism. G. F. Barnes, Herkimer, N. Y.—p. 816.

Erysipelas with Loss of Vision.—Cooper reports what he believes to be the only case on record of loss of vision from an attack of erysipelas. The patient was treated with antistreptococcic (erysipelas) serum injections in large doses. About eight injections were given, together with appropriate local treatment. Emetin injections, one-fourth grain, were given every day for three days. After the third injection, the temperature dropped to normal. Three more injections were given and the fever remained below normal. During this period the only drug that was administered to the patient by mouth was liquor ferri perchloridi several times a day. The blood picture showed, instead of a leukocytosis, a marked leukopenia, which is very unusual in such diseases, with the red blood cells numbering 2,020,000 and a few microcytes. There were no other changes in the blood. About eight days after the complete fall in temperature, large abscesses suddenly developed on the face of the patient, in both arm pits and on the buttocks. Autogenous vaccine was prepared and four injections were given. This prevented the development of further abscesses and inhibited the ripening of those already formed. There were no other pyemic complications. Vision eventually became normal. Cooper ascribes the patient's recovery to the iron.

Ohio State Medical Journal, Columbus

Nov. 1, 1920, **16,** No. 11

Epidemic (Lethargic) Encephalitis. E. Scott, C. W. McGavran and J. H. Warren, Columbus.—p. 797.
Present Day Nursing Problem in Obstetrical Practice. S. J. Goodman, Columbus.—p. 802.
Red Cross Public Health Nursing Program. V. L. Lorimer, Cleveland. p. 806.
Public Health Nursing Service in Norwalk, Ohio. L. G. Walters, Norwalk.—p. 807.
Water Supply Control in Ohio. W. H. Dittoe, Columbus.—p. 809.
Our Unfortunate Country Cousins. G. E. Robbins, Chillicothe.—p. 811.
Venereal Prophylaxis in Civilian Life. H. L. Sanford, Cleveland.—p. 815.
Operation of Venereal Disease Clinic. E. D. Thompson, Akron.—p. 818.
Malingering as a Postwar Condition. C. W. Stone, Cleveland.—p. 821.
Feebleminded Problem. C. F. Neu, Indianapolis.—p. 824.

Virginia Medical Monthly, Richmond

November, 1920, **47,** No. 8

Back to Old Standard of Ethics. P. A. Irving, Farmville.—p. 335.
Acute Nontuberculous Infections of Lungs and Pleura. F. C. Rinker, Norfolk.—p. 342.
Id. Symptomatology and Diagnosis. M. Call, Richmond.—p. 346.
Treatment of Pneumonia. J. W. Preston, Roanoke.—p. 350.
Nontuberculous Infections of Lungs and Pleura. Medical Treatment Except Pneumonia. G. B. Lawson, Roanoke.—p. 353.

Id. Surgical Treatment. D. P. Peters, Lynchburg.—p. 356.
Influenza. W. T. Vaughan, Richmond.—p. 361.
Foreign Bodies in Respiratory Tract and Their Removal by Laryngoscope and Bronchoscope. J. E. Diehl, Norfolk.—p. 366.
Care of Obstetric Cases in Remote Country Districts: The County Hospital. I. S. Stone, Washington, D. C.—p. 369.
Abscess of Lungs; Report of Cases. J. T. McKinney, Roanoke.—p. 371.
What Advice Shall We Give Regarding Pregnancy in Patients with Mammary Cancer? G. T. Tyler, Greenville, S. C.—p. 375.
*Fluid Injections by Intraperitoneal Route. J. S. Weitzel, Richmond.—p. 376.
Etiology and Treatment of Asthma. T. S. Shelton, Richmond.—p. 378.

Fluid Injections by Intraperitoneal Route.—Weitzel points out that fluid can be administered by the intraperitoneal route with more prompt results than by any other avenue, affording a weapon that fills a long felt want in the treatment of diseases in infants associated with marked dehydration and toxemia. He follows the teaching of Garrod, injecting such quantities of physiologic sodium chlorid solution as are indicated, usually from 75 to 250 c.c.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Surgery, London

October, 1920, **8**, No. 30

*Cysts, and Primary Cancer in Cysts, of Breast. G. L. Cheatle.—p. 149.
*Four Aneurysms in Neck. R. L. Knaggs.—p. 167.
*Causation of Appendicitis. A. R. Short.—p. 171.
Sex and Age Incidence in Appendicitis. A. E. Maylard.—p. 189.
Traumatic Dislocation of Knee Joint. H. Platt.—p. 190.
Cause of Death in Certain Cases of Early Fatality Seen at Casualty Clearing Station. H. W. Kaye.—p. 193.
Pathology of Gunshot Wounds of Spinal Cord. W. Thorburn.—p. 202.
Gunshot Wound of Forearm Masking Symptoms of Cervical Rib. C. P. G. Wakeley.—p. 226.
*Intussusception of Vermiform Appendix. A. J. Blaxland.—p. 227.
Two Cases of Omphalomesenteric Cyst Causing Intussusception. F. J. Coutts.—p. 228.

Cysts and Cancer of Breast.—Observations made from whole sections of female breasts lead Cheatle to the conviction that cancer can and does begin in cysts, and, further, that not only can it begin therein, but it also gives rise to such definite and typical microscopic appearances that this source of origin can thereby be demonstrated. Cheatle advises the removal of every breast which is obviously clinically cystic, even if only a single cyst is clinically present.

Aneurysms in Neck.—A case of varicose aneurysm (arteriovenous) of the common carotid artery; two cases of traumatic aneurysm at the root of the neck, treated by distal ligature of the common carotid, and a case of carotid aneurysm, treated by proximal ligature are recorded by Knaggs.

Cause of Appendicitis.—It is suggested by Short that the cause of the increase in the frequency of appendicitis in Great Britain is the relatively less quantity of cellulose eaten on account of the wider use of imported foods.

Intussusception of Appendix.—In Blaxland's case, occurring in a man, aged 63, the appendix had become completely turned inside out and had drawn the cecum up with it, resulting in an ileocolic intussusception. The history of this case suggests that the invagination of the appendix took place gradually over a period of several weeks, and caused no symptoms of consequence until the cecum became implicated in the process, when acute symptoms at once became evident. In the absence of the passage of blood per rectum, the cause of the intestinal obstruction could not be diagnosed prior to operation, but the detection of the abdominal tumor enabled the selection of the most suitable incision for laparotomy to be made.

British Medical Journal, London

Nov. 6, 1920, **2**, No. 3123

Principles of Internal Secretion. W. L. Brown.—p. 687.
Early Symptoms and Signs of Nervous Disease and Their Interpretation. H. Head.—p. 691.
*Blackwater Fever. A. Goodall.—p. 697.
*Resuscitation in Death Under Anesthesia. W. E. Fisher.—p. 698.
*Head of Rye Grass in Lung Removed from Pleura. R. E. Smith.—p. 701.
Intranasal Dacryocystostomy. H. L. Whale.—p. 701.
Case of Bromoform Poisoning, with Recovery. W. B. Watson.—p. 702.
*Spontaneous Extrusion of Fibroid. G. C. Gell.—p. 703.

Blackwater Fever.—Fourteen cases of blackwater fever are tabulated by Goodall. In twelve of these malaria parasites were found. All the patients were treated with large doses of quinin and twelve recovered. It is contended that malaria is the essential cause of blackwater fever, and that exposure to cold may be an important factor in determining its onset.

Resuscitation in Death Under Anesthesia by Heart Massage.—Fisher directs attention to the fact that the living tissues of the body, according to their nature, return a varying measure of vital force and survive for varying periods the suspension of their blood supply. The more lowly their origin, the more durable is their life. The connective tissue and epithelial elements may survive for days, as is shown by their preservation if kept cool for purposes of grafting. Muscle may preserve its vitality for hours, but the little delicate fabric of the central nervous system, on which vital systemic processes depend, does not survive deprivation of its vascular nutrient supply for more than thirty minutes at the most. Accordingly, experience of cardiac massage has shown that cessation of the circulation for thirty minutes means inevitably the termination of life, so that after a longer period cardiac massage and artificial respiration alike are futile.

Head of Rye Grass in Lung.—Smith cites a case in which an ear of rye grass was inhalted, and after producing symptoms of an unusual character was extracted from the pleura.

Spontaneous Extrusion of Fibroid.—Gell cites a case in which infection of the uterus—probably autogenous—was responsible for the natural cure of a fibroid. An abscess probably formed in the uterine wall. The gradual process of suppuration must have loosened (or sloughed) the tumor from its bed and so rendered it capable of extrusion from the uterine cavity as a foreign body.

Nov. 13, 1920, **2**, No. 3124

*Treatment of Subacute Nephritis by Kidney Decapsulation. T. Horder.—p. 727.
Surgical Treatment of Cancer of Rectum. W. E. Miles.—p. 730.
Oxygen Inflation of Peritoneal Cavity for Radiographic Purposes. J. E. H. Roberts.—p. 742.
Case of Lethargic Encephalitis. J. J. Hanley.—p. 743.
Hydatidiform Mole: Perforation of Uterus. R. C. Harkness.—p. 744.
Case of Gonorrheal Mastitis. W. H. F. Oxley and J. Dundas.—p. 744.

Kidney Decapsulation in Subacute Nephritis.—Four cases of decapsulation are reported by Horder. The first two cases were highly successful in their end-results. The second pair of cases were partially successful. In all four of the cases both kidneys were decapsulated at the same operation. The capsules were completely stripped from the entire organs, were cut away, and were removed. Horder believes that there is a clinical type of nephritis in which—when thorough general measures have proved unavailing, and a reasonable time element, during which it is known that resolution not infrequently occurs, has passed—decapsulation becomes a definite indication and promises satisfactory results. This type he terms subacute nephritis, and is characterized by extensive and considerable edema, massive albuminuria with casts in the urine, toxic symptoms of the chronic uremic kind, and an absence, or the presence in only slight degree, of cardiovascular changes, such as arteriocapillary fibrosis, hypertrophy of the left ventricle, arterial hypertension and retinal degeneration. This was the state of things in both of Horder's cases that resolved completely after the operation. In the two cases in which some improvement followed the procedure, but no cure, definite evidence of cardiovascular changes was present, and the type of disease suggested a general involvement of the arterial system rather than a local inflammatory process in the kidney.

Bulletin Naval Medical Association of Japan, Tokyo

September, 1920, No. 30

Surgical Solution of Chlorinated Soda and Eusol Prepared from Materials in Japan. K. Murakami.—p. 1.

Japan Medical World, Tokyo

Oct. 9, 1920, **10**, No. 41

Disinfection of Japanese Room. S. Toda and K. Fujiwara.—p. 887.

Oct. 16, 1920, **10**, No. 42

Progress of Medical Science in Brazil. A. Neiva.—p. 911.

Journal of State Medicine, London

November, 1920, **28**, No. 11

State, Doctor and Venereal Disease. J. H. Sequeira.—p. 327.
Antigens and Antibodies. M. Nicolle.—p. 343.
Case of Oriental Sore Cured by Intravenous Injections and Inunctions of Antimony Tartrate. G. C. Low.—p. 354.

Lancet, London

Nov. 13, 1920, **2**, No. 20

*Mental Defect and Criminal Conduct. B. Donkin.—p. 979.
*Interrelationship Between Pregnancy and Syphilis. R. A. Hendry.—p. 986.
*Spirillolysis and Its Causation. A. Routh.—p. 988.
*Results of Three Years' Treatment of Syphilitic Mothers and Babies. J. Adams.—p. 990.
*Experiments with Cerebrospinal Fluid. J. E. R. McDonagh.—p. 991.
*Treatment of Diphtheria Carriers with Detoxicated Klebs-Löffler Vaccine. A. R. Fraser and A. G. B. Duncan.—p. 994.
*Preservation of Lemon Juice. P. W. Bassett-Smith.—p. 997.
*Simple Method of Tonsillectomy. J. O'Conor.—p. 998.
Transposition of Cecum, Appendix and Colon, with Absence of Sigmoid Flexure. V. J. Glover.—p. 998.
*Case of Nerve Suture with Immediate Return of Sensation. W. Robertson.—p. 999.

Mental Defect and Criminal Conduct.—Donkin is of the opinion that criminal conduct is dependent on the innate capacities of each individual as developed and actuated by the innumerable influences which act on these capacities; and that the actual mental characters or qualities observed are the resultant of these factors. In his opinion the proper and fruitful understanding and treatment of criminals depends mainly on the careful study of the individual offender. This consideration should influence far more than it does at present the sentences awarded in courts of law, which are to an undue extent based on the class of crime committed; irrespectively of the history of the accused person, and of the circumstances in which the offense took place. No judge should pronounce any sentence of imprisonment unless he is personally acquainted by visiting prisons with the actual nature of the terms of imprisonment entailed by his sentences.

Pregnancy and Syphilis.—Hendry concludes: (1) that the clinical evidence of syphilis is unreliable; (2) that the Wassermann reaction is the test by which, at present, the diagnosis must usually be made; it must be borne in mind that a negative or a slightly positive reaction may accompany syphilis during pregnancy, and, moreover, that a positive reaction may occur in a nonsyphilitic individual; (3) that the examination of stillbirths, etc., furnishes reliable but, at present, insufficiently available, evidence; (4) that the institution of mercurial treatment before the pregnancy justifies a favorable fetal prognosis; (5) that the prognosis when treatment is begun during the pregnancy depends on the unknown and already present degree of infection of the fetus. Hendry analyzes cases of latent syphilis, in which, apart from the effect on the pregnancy, there were no active clinical symptoms or signs of syphilis.

Treatment of Syphilis in the Pregnant.—The treatment of syphilis in the pregnant woman is, in Routh's opinion, only likely to be successful if up to the date of its commencement the multiplication of the mature spirochete has been prevented by the granulosing and inhibiting action of the ferments, for if unrestricted infection by the mature organism had been going on in the early cellular ovum or fetus it would have speedily been destroyed, for every growing organ would have been invaded. He believes that congenital syphilis could be prevented in all well organized health centers if every expectant mother came under scientific medical supervision, and if facilities for diagnosis, and for both efficient and sufficiently prolonged treatment of mother and child were available. This is what the ministry of health is endeavoring to organize.

Treatment of Syphilitic Mothers and Babies.—The results of treatment of syphilitic mothers and babies Adams says are most encouraging. In the last two years there has been only one stillbirth and no deaths from syphilis among the cases treated. His experience has been that if the mother's Wassermann reaction can be brought to negative or doubtful at her confinement, the baby will be born negative and show no sign of syphilis. If the mother is positive or strongly positive, the baby will probably be positive too, in which case, of course, vigorous antisyphilitic treatment is begun at once. None of the babies born negative have since become positive, nor developed any signs of syphilis, though many have not had any treatment beyond the drugs they absorb through their mother's milk. Adams states that a pregnant woman with syphilis, whether active or latent, if treated for three or four months before her confinement, will probably be delivered of a healthy child at full term.

Examination of Cerebrospinal Fluid.—McDonagh claims that shaking a cerebrospinal fluid with toluene, xylene, or benzene the day after it is withdrawn will enable one at once to determine whether the lesion is degenerative or not. This test may be still further confirmed by treating another portion of the fluid with liquor formaldehydi before it is shaken with a hydrocarbon liquor. The various proteins merge into one another; there is no hard and fast line between albumin and globulin, and globulin and lipoid-globulin. The differences between them are physical rather than chemical. The complement-fixation test is regulated by the ions on the surface of the protein particles—their number and electric charge. The colloidal gold test is dependent on the presence of certain protein particles (lipoid-globulin) which have a prevailing positive electric charge on their surface. Carried out with distilled water this test will readily serve to distinguish a normal fluid from a fluid from a case of degeneration, because the latter only will precipitate the colloidal gold and in the first few tubes only. This may be confirmed with the fluid pipetted off from the hydrocarbon emulsion, because only those fluids from cases of widespread degeneration will precipitate colloidal gold. A diminution in the precipitation of colloidal gold in the first tube when the fluid has been treated with acetic acid indicates degenerative encephalitis. This may be confirmed by the slight precipitation which occurs in fluids which have been treated with ammonia and allowed to rest before being tested and which is only met with in cases of degenerative encephalitis. The lipoid-globulin particles simulate parasites in certain ways and those found in the cerebrospinal fluid in degenerative cases are waste products which have reached the fluid by ultrafiltration through the choroid plexuses. Treating a normal fluid and serum with an acid makes the protein particles therein approach as near as possible to those normally met with in syphilis.

Treatment of Diphtheria Carriers with Detoxicated Klebs-Loeffler Vaccine.—Fraser and Duncan injected this vaccine subcutaneously and intravenously in doses of from 200 to 350,000 millions. In one case eleven doses were given during about six weeks at four days intervals. They suggest a course which might be suitable for the treatment of chronic diphtheria carriers. The first does of 0.05 c.c. contains 5,000 million bacilli. On the fourth day another larger dose is given. The twelfth dose, given on the forty-fifth day, 3.5 c.c., contains 350,000 million bacilli. Good results are reported.

Preservation of Lemon Juice.—The juice of fresh lemons is evaporated by Bassett-Smith down in vacuo at room temperature to a specific gravity of 1.3; it is then a dark yellow, viscid, and very acid fluid, easily made into solid tablets with lactose, etc., and keeping well either in the concentrated juice or tablet form. Boiling the lemon juice for five minutes does not appreciably diminish the antiscorbutic property. Heating for three quarters of an hour at 58 C. diminishes it to a more marked degree. The equivalent of 2.2 c.c. in one animal gave complete protection; 4.4 c.c. completely protected three out of four.

Tonsillectomy.—The essentials of O'Conor's method are rigid maintenance of the head in the vertical position, and the intelligent assistance of the left index finger.

Nerve Suture with Immediate Return of Sensation.—In Robertson's case the median nerve was severed in an attempt made by a layman to reduce a fracture of the humerus. After union was complete, extreme atrophy of the forearm and hand were noted. A nerve lesion was suspected. After freeing the nerve from cicatricial tissue the sheath was found to be intact, but a gap was observed measuring 2 or 3 mm. The sheath was cut through the gap, and when the two cut ends of the nerve were examined each surface was found covered

with small oval bodies, the repair material of a severed nerve. No formed tissue existed between the ends of the nerve. The repair material was shredded off down to normal nerve fiber and the two ends of the nerve were sutured through with fine silk. In opposing the ends the proper alinement of the nerve was observed. The nerve sheath was carefully stitched up. When the boy came out of chloroform, or shortly afterward, he could feel his fingers. He could also discern articles placed between fingers and thumb. To the integrity of the nerve sheath is to be attributed the early functioning of the nerve cells.

Annales de Médecine, Paris

July, 1920, **8**, No. 1

*Rats United by Siamese Graft. B. Morpurgo (Turin).—p. 1.
*Gas Cysts of the Intestines. M. P. Weil.—p. 11.
*Central Neurofibromatosis. E. Christin and F. Naville.—p. 30.
Fibrous Patches Enclosing Meningococci on the Arachnoid. R. Lutembacher.—p. 51.
*The Modern Views on Tuberculosis. L. Bernard.—p. 54.

Symbiosis of Two Rats.—Morpurgo comments on the fact constantly observed in his experiments that when a strong rat and a weak rat are united by a Siamese graft, the weaker one succumbs in a few days to rapidly progressive atrophy. He thinks that this throws light on the individual constitution.

Cystic Pneumatosis.—Weil tabulates the details of seventy cases on record of gas cysts of the intestine, including a case in a woman of 25 reported in detail. The list includes Finney's case (THE JOURNAL, Oct. 17, 1908, p. 1291). The symptoms may suggest appendicitis, peritonitis, ileus or a tumor, but the abdomen may be soft and depressible notwithstanding the extreme distension, and there may be an elastic response and resonance to percussion, crepitation, gas ascites, and lack of shadows in radioscopy. The therapeutic effect of a laparotomy is remarkable, even when it is merely exploratory. Five writers have reported that the cysts disappeared thereafter. This occurred likewise in the case here reported, but although nearly all the cysts had disappeared, spasm of the bowel induced ileus rebellious to medical measures, and the patient did not long survive the gastro-enterostomy this required. In Kadjian's case the cystic process kept recurring after three laparotomies and excisions. In 32, that is, in 59 per cent. of the total 54 cases of which details are known, there was associated ulcer in the stomach or pylorus; in 4 cases tuberculosis of the bowel; in 2 of the lungs; in 2 each chronic appendicitis or enteritis; and once each tuberculous peritonitis, pyloric cancer, pernicious anemia, uremia and myocarditis. In the case here described there was no associated lesion but a history of moderate typhoid three years before. The differential diagnosis is masked as a rule by the associated lesion, so that pneumatosis may sometimes have been overlooked in the past.

Central Neurofibromatosis.—Christin and Naville report from Geneva a case of intracranial neurofibromatosis in a man of 39. Thirty-one tumors were found inside the skull, of the most various structure, gliomas, fibromas, neuromas, myxomas, osteomas, endotheliomas and sarcomas. The patient at 17 had become suddenly completely deaf after sudden vertigo and a fall, but from that time to the age of 39 had had no other symptoms. In sixteen of the twenty-three cases of central neufibromatosis on record the first symptoms had appeared before the age of 20 but then intervals up to 35 years had passed without further disturbance. In two of the three other cases, a neurofibroma had been discovered on the optic nerve in childhood. Central complete deafness is the hall-mark of the disease. It was bilateral in sixteen of the twenty-three cases and unilateral in four; in the others, an otitis might have explained the deafness. In only one of the total was the hearing normal. Equilibration was scarcely impaired although the labyrinth was evidently destroyed, which testifies to remarkable functional substitutions. This is also suggested by the frequent lack of violent and intense headache, torpor, somnolency, etc. There were cutaneous neurofibromas only in about two thirds of the cases, but a familial or hereditary character was evident in a number.

Modern Ideas on Tubercle Bacillus Infection.—Bernard reiterates that the variable evolution of tuberculosis is governed by two conditions: the number of the bacilli causing the infection and the solidity of the immunization. The infection is essentially a vaccinating infection, but the immunization is variable and unstable. Tubercle bacilli are all of about the same degree of virulence; it is merely a question of quantity. These conceptions do away with the old theory of the virus and the soil. Every human being is susceptible to infection with the tubercle bacilli; there is no natural immunity. Modern research has demonstrated the tuberculous origin of many pathologic conditions for which in the past no one thought of incriminating these bacilli. It has been demonstrated further that the tubercle bacilli can traverse a mucous membrane, the conjunctiva as well as the intestinal mucosa, without determining lesions in it. Only in the already tuberculized organism do they induce a lesion as they pass. The physiologic route for absorption is the intestinal mucosa, and dust and droplets containing the bacilli can be swallowed as well as the bacilli in food.

When the bacilli get through the intestinal mucosa, the mechanical conditions of the circulation of blood and lymph favor their accumulation in the lungs and bronchial glands. This explains the predilection of the lungs for tuberculosis and does away with the necessity for assuming infection by inhalation. Calmette maintains that the bacilli get into the blood occasionally and are thrown off by the emunctories, mostly in the bile and by the intestinal route. This intermittent elimination makes the individual not only a carrier but a sower of bacilli even when he may be apparently healthy, his latent tuberculous focus revealed only by the tuberculin test. Bernard denies this, declaring that it is difficult to conceive that the emunctories can excrete bacilli unless the organs of elimination are themselves the seat of a tuberculous process. Calmette insists also that immunity to tuberculosis obeys the same laws as immunity to syphilis: As soon as the last of the bacilli have been killed or eliminated, the individual is as susceptible to new infection as the virgin organism. There is no doubt that artificial controlable vaccination is the ideal of the future, but to date, he says, all the efforts in this line have failed.

Journal de Chirurgie, Paris

1920, **16**, No. 5

*Diverticuli of the Esophagus. H. Hartmann.—p. 481.
*Surgery of the Pituitary. Lacouture, Charbonnel and Lafargue.—p. 491.

Diverticulum of the Esophagus.—Hartmann warns that even with roentgenoscopy, a diverticulum of the esophagus is liable to be mistaken for spasm or stenosis, saying that he has made this blunder twice himself. In one man of 65 who for over three years had complained of bad taste in his mouth and regurgitation, the bismuth meal seemed to indicate merely transient spasm with merycism, but Hartmann suspected a diverticulum from the sensation of shriveling felt on palpation when the larynx was pushed back, this sensation subsiding as the diverticulum was emptied by the pressure. One woman of 61 had had difficulty in swallowing for nine years, with spasms of coughing at night during which she expelled scraps of food and once a drug tablet taken forty hours before. For the last year and a half she felt that a pocket emptied itself when she lay on the side, the fluid and other contents pouring into the mouth. Hartmann improved the general health by feeding through an opening into the stomach, and a month later resected the diverticulum with complete success aided by a number of minor points in the technic which he describes.

Operation on the Pituitary.—Another case of hypophysectomy is added here to the 159 on record. A successful intervention requires an early diagnosis and the good luck to happen on a benign, still circumscribed tumor. The various technics that have been applied are described, and the preference given to access through the right sinus and upper jaw, on one side, the only incision required for this being from around the nostril straight down to the lip, a little to the right of the center. This allows nearly the whole of the cheek to be turned back almost to the orbit. In the case reported, with illustrations, this operation put an end to the intense headaches and arrested the progressive loss of vision and the tendency to obesity and to enlargement of the extremities. Through an incision 1.4 cm. long in the floor of

the sella, 7 or 8 gm. of a cerebroid tissue was scooped out which seemed to be part of the anterior lobe of the pituitary. The lack of disfigurement from the extensive operation was remarkable. This operation shows up extensively the floor of the sella turcica, but the region above is hard to reach and explore.

Journal de Radiologie et d'Electrologie, Paris

October, 1920, **4**, No. 10

*Radiotherapy of Cancer. C. Regaud.—p. 433.
*Köhler's Disease. Drevon.—p. 466.

Radiotherapy of Cancer.—This is Regaud's address at the International Surgical Congress in July. He reviews the bases, indications and results, emphasizing that almost without exception the rational radiotherapy of a cancer requires the combination of roentgen-ray and radium treatment besides surgical measures. His final conclusion is that surgery has about reached the limit for excision of malignant disease; fulguration and diathermy have not added much to the results of surgery alone. Radiotherapy is like surgery, both are purely local, and both are provisional, until some means is discovered to act on the malignant disease from within by means of agents brought to the spot by the blood, even if no more than to sensitize the cancer tissues for radiotherapy. Distance and metastases will then offer no obstacle. This third phase of treatment of cancer has begun but to date it has not yielded any important results. Radiotherapy, however, is gaining rapidly on surgery, but it should be as modest as the latter, knowing that both are building on sand. Certain superficial epitheliomas are so susceptible to radiotherapy that surgery is now contraindicated for such growths, but spindle-cell epidermoids are very resistant. Wherever the seat, skin, lip, tongue, or mucosa, the growth may apparently melt away, but malignant elements still persist in the depths, and local recurrence is the rule after the apparent cures realized by the technic of radiotherapy that has been applied until recently. The difference is so great between the susceptibility of these epidermoid epitheliomas and other varieties, especially ulcus rodens, that a different technic must be worked out for them. Histologic control is not possible of the cures that have been published and, until we are better informed, it is wiser to cut out the operable epidermoids. He advises radium treatment of operable cancer of the uterine cervix and then, a few weeks later, excision. Radiotherapy does not aid in sowing cancer cells abroad but it promotes the development of preexisting scattered cells.

Case of Köhler's Disease.—Drevon comments on the vagueness of the symptoms, merely vague pains in the foot, compared to the characteristic roentgen-ray findings showing an anomaly in the development of the scaphoid bone. In a case illustrated both feet were affected, which conflicts with the assumption of a traumatic or infectious origin. Mouchet calls it scaphoiditis of the tarsus in young children. The scaphoid is small, and almost as opaque as metal.

Journal d'Urologie, Paris

1920, **10**, No. 1

Diverticulum of Bladder. V. Pauchet and R. de B. d'Ormond.—p. 1.
*Primary Tuberculosis of the Bladder. M. Jungano.—p. 15.
*Catheterization of Ureters. E. Pillet.—p. 43.

Primary Tuberculosis of the Bladder.—Jungano reports a case in a woman of 35, and reviews the literature on the diagnosis and outcome. He wrote to twenty-five leading urologists to inquire their experience with primary tuberculous cystitis, and only two had ever known of an instance of primary tuberculosis of the bladder. One of these stated that as catheterization of the ureters had not been done, it is impossible to state that the kidneys might not have been affected. Brongersma was the other, and in his case the diagnosis had been primary tuberculosis of the kidneys, but on attempting the proposed nephrectomy the right kidney was found sound, and months later the left kidney was exposed, and was likewise found sound. The diagnosis was thus corrected to tuberculous cystitis. This patient, a woman now 34, had had symptoms from the urinary apparatus since the age of 10; eighteen years have elapsed since the attempted operations on the kidneys. The general health is fair but the chronic cystitis has grown worse.

Catheterization of Ureters Through the Opened Bladder.—Pillet regards opening the bladder as less serious than exploratory exposure of both kidneys in case of cystitis so intense as to prevent cystoscopic examination of the bladder. In seven cases described, this allowed catheterization of the ureters and diagnosis of conditions in the kidneys. This showed that one kidney was sound and permitted the removal of the diseased organ.

Paris Médical

Sept. 18, 1920, **10**, No. 38

Relations Between Lethargic Encephalitis and Other Morbid Conditions. C. Achard.—p. 209.

Sept. 25, 1920, **10**, No. 39

High Blood Pressure Inevitable with Arteriosclerosis and Sclerosis of the Kidneys. P. Carnot and F. Rathery.—p. 221.
Primary Dilatation of Esophagus. E. Chabrol and J. Dumont.—p. 226.

Oct. 2, 1920, **10**, No. 40

*Neurology in 1920. J. Camus.—p. 233.
The Mental State in Paralysis Agitans. H. Claude.—p. 241.
Basal Metabolism in Exophthalmic Goiter. G. Roussy.—p. 245.
Physiology and Pathology of Striate Body. J. Lhermitte.—p. 247.
*Trigeminal Neuralgia. De Martel.—p. 254.
*Frontal Coma. G. Milian.—p. 256.
Meningitis with Tabes and General Paresis. C. Vincent.—p. 258.
What Psychiatry Learns from the War. Porot and Hesnard.—p. 260.

Neurology in 1920.—Camus quotes that the lumbar puncture fluid should always be examined the fourth year after infection with syphilis. If the patient is not seen until between the fourth and tenth years, the fluid then should be examined regularly. After the tenth year it is not so important, as in 75 per cent. of the cases the symptoms by that time are unmistakable. He cites data which have apparently demonstrated that the symptoms for which we have been incriminating the pituitary are in reality the work of the nerves compressed by the pituitary tumor, and are not due to the pituitary secretion. "It is impossible to conceive how a secretion could induce the extra deposit of fat at some points and its disappearance at other points, such as we see in lipodystrophy, while a nervous origin would readily explain this." The peptone antianaphylaxis treatment of migraine and the antianaphylaxis treatment of epilepsy by seeking the article of food that seems to bring on the seizure and having the patient eat half a gram of it forty-five minutes before the regular meal of the same, open new horizons in treatment. He cites as further progress the benefit from luminal treatment in epilepsy, and from arsenical preparations in shaking palsy; from direct injection of alcohol in causalgia, and from epinephrin by the mouth in Erb's myasthenia. Also Stocker's report of a case of acute mania in which a cure was realized by partial thyroidectomy.

Trigeminal Neuralgia.—De Martel has done retrogasserian neurotomy in fourteen cases and with complete success in thirteen. He begins with injection of alcohol; this alone may cure. If it relieves, it shows that retrogasserian neurotomy is indicated if the pain returns.

Frontal Coma.—Milian discusses the features which differentiate the various sites for lesions inducing coma. With coma from a frontal lesion, the sensory functions are almost normal and the cornea reflex is unimpaired. It simulates natural slumber, the pulse regular although small.

Presse Médicale, Paris

Oct. 6, 1920, **28**, No. 72

*Cancer of the Rectum. V. Pauchet.—p. 705.

Cancer of the Rectum.—Pauchet declares that radical or very long cures may be anticipated with malignant disease of the rectum after extensive resection of the cellular tissue and glands as well as the rectum itself. The outcome depends on the first physician consulted by the patient. He gives nineteen illustrations of the technic for removal by abdomen and perineum in the good cases; and by the perineum and sacral region at two sittings in the border cases. The inoperable cases may improve remarkably under an artificial anus and radium treatment, making a buttonhole incision in muscle for the iliac anus, with demitorsion, and training the patient to use it.

Oct. 9, 1920, **28**, No. 73

Potassium Borated Tartrate in Treatment of Epilepsy. P. Marie, Crouzon and Bouttier.—p. 713.
Dextrocardia Acquired from Pulmonary Lesion. Papillon and Flipo.—p. 716.
Recent American Literature on Benzyl Benzoate in Therapeutics. L. Cheinisse.—p. 717.

Oct. 13, 1920, **28**, No. 74

*Paratyphoid Bacilli in Cream Cakes. E. Lesné and others.—p. 725.

Poisoning from Cream Cakes.—Lesné, Violle and Langle cultivated paratyphoid B bacilli from the stools of three children seized with acute, severe gastro-enteritis from four to eighteen hours after having eaten a *cornet à la crème* at lunch, and the same bacilli were found in the cream filling. A number of other children and adults—a total of twenty-eight, including some in the baker's family—were also affected, and the condition was grave at first but all had recovered by the tenth day. There was nothing in the aspect or odor of the cakes to suggest that anything was wrong, but the cakes had stood in the showcase for twenty-four hours on a June day. The bacilli from the filling were agglutinated at 1:1,000 by a test serum that agglutinated paratyphoid B. Lecoq compiled in 1906 records of 700 cases in seven years of poisoning from bakery goods or pastry with cream filling, and this is the third epidemic that has been reported since. They suggest the need for forbidding the use of raw cream for filling, at least during the summer; the sugar, gelatine, etc., make a good culture medium for the paratyphoid B and the salmonelloses. The poisoning does not always terminate so harmlessly as in these cases.

Revue Médicale de la Suisse Romande, Geneva

September, 1920, **40**, No. 9

*The Prognosis in Syphilis. M. Monfrini.—p. 541.
Ocular Symptoms in Lethargic Encephalitis. A. Verrey-Westphal.—p. 557.
*Obstetric Paralysis of Arm. C. Thélin.—p. 562.
*Results of Gastro-Enterostomy for Ulcer. A. Métraux.—p. 569.
Disordered Heart Action in Soldiers of the Belligerent Armies. E. Thomas.—p. 622. Conc'n.

Prognosis in Syphilis.—Monfrini insists that it is impossible to draw the prognosis in syphilis without examination of the cerebrospinal fluid. At every phase of syphilis lumbar puncture is indispensable, either for diagnosis or for prognosis and as a guide to treatment. He describes a case in which sixteen months after infection and vigorous specific treatment, including twenty-four intravenous injections of arsphenamin preparations, the Wassermann reaction was persistently negative and there was not a trace of clinical manifestations of the disease, and there had never been any symptoms on the part of the nervous system. The patient refused lumbar puncture, and a few weeks later alarming neurosyphilis developed.

Obstetric Paralysis of the Arm.—The brachial plexus had evidently been overstretched lengthwise in Thélin's case in which some effort had been necessary to liberate the shoulders and trunk after the head had been born. The paralysis gradually subsided completely in three months.

Simple Posterior Gastro-Enterostomy for Gastric and Duodenal Ulcers.—Métraux summarizes the details in turn of 210 cases in Roux' service with 90 per cent. of cures and 3.3 per cent. deaths from peptic or recurring ulcer, or cancer, or uremia. The 53 cured and 5 much improved cases formed 90.6 per cent. of the 64 pyloric ulcer cases; the 25 cured formed 86.2 per cent. of the 29 ulcers on the lesser curvature close to the pylorus, and the 24 cured formed 89.7 per cent. of the 29 ulcers of the mediogastric lesser curvature; the 5 cured formed 7.4 per cent. of the 7 ulcers in the cardial region; the 13 cured formed 92.8 per cent. of the 14 ulcers in the anterior wall, and the 12 cured formed 92.3 per cent. of the 13 ulcers in the posterior wall; the 25 cured and 1 much improved formed 96.5 per cent. of the 27 cases of duodenal ulcers, and the 9 cured and 1 much improved formed 83.3 per cent. of the 12 cases of multiple gastric and duodenal ulcers, the cure persisting for from five to ten years. All were cured in the 4 cases of ulcer on the greater curvature, one for thirteen years. In 9 cases no ulcer was found to explain the ulcer symptoms, but the 7 cured and 1 improved formed 88.8 per cent. Métraux emphasizes that simple posterior gastro-enterostomy will give better results than other operations on the stomach, in the hands of the majority of surgeons, for a long time yet.

Schweizerische medizinische Wochenschrift, Basel

Oct. 21, 1920, **50**, No. 43

*Transfusion and Reinfusion of Blood. D. Eberle.—p. 961.
*Pregnancy Toxicoses. W. Bigler.—p. 968.
*Poisoning from "Dial." A. Müller.—p. 973.

Blood Transfusion.—Eberle reinjected the blood from a tubal abortion in ten cases and in two others the extravasated blood from rupture of the liver; in eight cases the blood of a relative was injected. The immediate effect was extremely favorable in this last group but permanent benefit was realized only in four; the others died. The seven that recuperated in the other group might have recovered without reinfusion of their own blood. Hemolysis occurred after reinfusion of one patient's own blood. To have an actually life saving influence in severe anemia, as much as 0.75 or 1 liter is necessary.

Pregnancy Toxicoses.—Bigler comments on the failure of the various tests for pregnancy and to determine the nature of pregnancy toxicoses, based on hemolysis, precipitation, agglutination, deviation of complement, and on anaphylaxis. It has proved impossible to induce anaphylactic reactions in the maternal organism with serum from the fetus. The toxic substances which enter the maternal blood stream from the placenta are evidently not true antigens, or else the maternal organism possesses some defensive mechanism which deprives them immediately of any antigen property. The pregnancy toxin, on the other hand, is not a ferment but seems to be more of the nature of a proteinogenous amin. He thinks there is much to incriminate proteinogenous amins which have an action similar to that of epinephrin, these amins being the product of atypical proteolysis in the placenta itself. The solution of the problem of the pregnancy toxicoses is therefore to be sought in chemistry rather than in immunology, etc.

"Dial" Poisoning.—Müller reports what he thinks is only the second case on record of poisoning from an overdose of dial taken by mistake or with suicidal intent. Differentiation from diabetic and uremic coma is difficult. He advocates profuse rinsing out of the stomach with a weak solution of potassium permanganate. Dial closely resembles veronal.

Archivos Latino-Amer. de Pediatría, Buenos Aires

July-August, 1920, **14**, No. 4

*Cerebrospinal Syphilis in Child. J. C. Navarro and C. Pillado Matheu.—p. 297.
*Helminths in Infants. C. Ferreira.—p. 302.
*Immunization Against Measles. Margarino Torres and Genesio Pacheco.—p. 305.
Pure Radial Paralysis in Boy. V. Escardó y Anaya.—p. 313.
*Transfusion for Anemia in Child. M. F. Langón.—p. 319.
Tuberculous Meningitis in Course of Typhoid; Three Cases. M. Ponce de León.—p. 324.
*Ophthalmic Herpes Zoster in Child. J. de Salterain.—p. 331.
Spontaneous Rupture of Hydatid Cyst in Liver. F. Rodriguez Gomez.—p. 336.

Neurosyphilis in Boy of Ten.—The symptoms deceptively simulated sclerosis in patches except for the lack of a progressive course, the great improvement under mercurial treatment, and persistence of the improvement during the two years to date.

Helminths in Infants.—Ferreira found the oxyuris, trichocephalus or ascaris in 23 per cent. of the 196 infants from 6 months to 2 years old at S. Paulo. At Rio de Janeiro and Buenos Aires the proportion infested among children a little older than this was 80 and 54 per cent., respectively.

Immunization Against Measles.—The blood of measles patients during the pre-eruptive or eruptive period injected into guinea-pigs induced a febrile reaction after an incubation of from three to five days. Blood from one of the guinea-pigs, drawn as the temperature rose and injected into a normal guinea-pig, induced likewise a febrile reaction. In this way the virus of measles was transmitted through a series of guinea-pigs in this research reported from Rio. Material taken from the throat of a measles patient in the pre-eruptive stage and injected subcutaneously in a guinea-

pig was not followed by a rise in temperature. Five children from 2½ to 5 years old, that had been definitely exposed to measles were inoculated with convalescent measles serum, and only one developed the disease and it was exceptionally mild in this case. The experiences related confirm, it is said, the statements of Richardson and Connor in THE JOURNAL, April 12, 1919, p. 1046, in respect to the presence of antibodies in the serum of convalescents from measles.

Transfusion for Anemia in Child.—The anemia had developed in the girl of 9 after influenza with a retropharyngeal abscess followed by septicemia, complicated with nephritis and hepatitis. The pulse was imperceptible and there was syncope when the child tried to sit up. The temperature was subnormal, the hemoglobin down to 25 per cent. As the other members of the family had influenza at the time, Langón gave 50 c.c. of his own blood for the transfusion, and the benefit was most striking at once. Another donor was found for a second transfusion of citrated blood the following day, a total of 120 gm., and the child recuperated completely.

Ophthalmic Herpes Zoster.—Salterain's patient was a girl of 11, and the herpes zoster developed around the eye and on the nose and brow, corresponding to the course of the ophthalmic nerve on the right side. The conjunctiva was inflamed, but the cornea was intact, and the pupil and reflexes were normal. The zona subsided in the course of ten or twelve days without leaving pigmentation. There had been a blow on this eye two days before the pains developed, but the pains did not locate at the point injured.

Brazil-Medico, Rio de Janeiro

July 31, 1920, **34**, No. 31

*Flushing the Maxillary Sinus. P. Brandão.—p. 491.
Mycosis of Lung. M. Machado.—p. 495.
The Hookworm Problem. Hackett.—p. 497.

Flushing the Antrum of Highmore.—Brandão punctures the antrum, through the nose, aspirates the contents, and then rinses out the cavity. Some patients are cured by this flushing treatment repeated only two or three times. Others require thirty, forty or more before a cure is realized. But he was able to cure 66 per cent. of his thirty-nine cases although the sinusitis was of from two weeks to two years' standing. The cases in which this conservative treatment had to be supplemented with operative measures were usually of much longer duration, up to eight and ten years. He gives six illustrations showing the exact technic of this "diameatic lavage," as he calls it.

Siglo Médico, Madrid

June 19, 1920, **67**, No. 3471

Hydrotherapy in Psychoneuroses. E. Fernández Sanz.—p. 449.
Spanish Pediatrists of Sixteenth Century. B. Henández Briz.—p. 451.

June 26, 1920, **67**, No. 3472

Extraction of Cataract in the Capsule. I. Barraquer.—p. 469.
The Current in Diathermia. B. Navarro Cánovas.—p. 470.

July 3, 1920, **67**, No. 3473

Vision Gained at Seventeen for First Time. B. Castresana.—p. 485. Cont'd.
Early Diagnosis of General Paresis and Tabes. G. R. Lafora.—p. 487.
The Modern Campaign Against Tuberculosis. A. Espina y Capo.—p. 489. Conc'n in No. 3478, p. 591.

Archiv für Gynaekologie, Berlin

1920, **113**, No. 1

*Technic for Radium Treatment. W. Hauschting.—p. 1.
*Ovarian Cancer. O. Frankl.—p. 29.
*Spontaneous Absorption of Tubal Pregnancy. J. Schiffmann.—p. 133.
*Conservative Operations on the Adnexa. H. H. Schmid.—p. 164.

Technic for Radium Treatment.—Hauschting summarizes the experiences at the Berlin women's clinic in charge of Bumm. They teach that 1 standard erythem dose is all that the mucosa of the intestines and bladder can bear, but the cervix muscles can stand 40, the corpus muscles 30, and the vaginal mucosa 5 or 6 erythem doses. On account of the proximity of the intestine and bladder walls, the dose for uterine cancer has to be calculated with great care for each individual case or exposing the cervix or vagina may entail serious by-effects. The carcinoma dose is practically the same as the erythem dose, and over and underdosage are both unfavorable. The cancers adapted for radium treatment are those in which the local conditions allow the complete irradiation of the whole with a single carcinoma dose. When the cancer is extensive or glands beyond have been invaded, then this cannot be realized and a cure with radium alone cannot be anticipated. If any point of the cancer does not receive the full erythem dose, that point is not devitalized when all the rest has been destroyed.

Ovarian Cancer.—Frankl's study of the pathology and clinical course of 65 primary and 23 secondary ovarian cancers fills over 100 pages, with two colored plates and other illustrations. Two of the patients were 17 and 19 years old, and 7 patients were in the twenties, as also 3 with metastatic cancer. Menstruation had been arrested for two or three months in 11 of the 18 younger women with metastatic cancer, and in 3 of the 65 primary cases. Hemorrhages occurred in only 10 of the 83 cases. In 2 cases a living fetus, 20 or 35 cm. long, was found in the uterus when both ovaries formed huge cancerous tumors. In one nonpregnant woman lactation was observed with an autochthonous ovarian cancer. On suspicion of ovarian cancer, search should be made for a primary focus in stomach, or intestines, and for the characteristic hard consistency of the uterus and possibly of the tubes. The hardness, he says, is like that of the uterus after fixation in formaldehyd solution, and this is enough of an indication for panhysterectomy as the uterus is almost always involved with metastatic ovarian cancer and the latter is generally bilateral. His impression is decidedly favorable for post-operative roentgen-ray exposures.

Spontaneous Retrogression of Tubal Pregnancy.—In Schiffmann's two cases as also in Goebel's case, evidences were casually discovered of a tubal pregnancy in which the transformation of the young ovum into a mole and the resorption and organization of this had progressed without subjective or objective disturbance at any time. The condition was discovered at a later laparotomy for other cause.

Conservative Operations on the Adnexa.—Schmid records 120 cases in which a wedge was cut from the fundus of the uterus along with diseased adnexa but part of one ovary was saved. He compares this experience with that of others, citing nearly seven pages of literature on conservative operations on the adnexa. This wedge excision is particularly useful for younger women as it wards off the premature menopause, and in 83 per cent. of his cases it restored full earning capacity. Of the 1,038 women with chronic adnexitis in the years 1911-1918, 75 per cent. were cured or improved to subsidence of symptoms by conservative measures. The annual number of cases of adnexitis has more than doubled since 1918, probably from return of the troops.

Archiv für Kinderheilkunde, Stuttgart

Oct. 16, 1920, **68**, No. 3

*Pericardial Adhesion in Children. L. Rehn.—p. 179.
*Fatless Breast Milk. E. Friedberg and C. Noeggerath.—p. 195.
*Epinephrin in Pneumonia in Infants. J. Vogl.—p. 215.
Malformation of Mesentery and Megacolon. F. Goebel.—p. 221.
*Galactose Metabolism in Children. Selma Meyer and G. Stern.—p. 241.
*Sugar Content of Children's Blood. A. Mertz.—p. 254.

Adhesive Pericarditis in Children.—Rehn declares that the diagnosis of cardiac defect covers a multitude of cases of adhesive pericarditis which it behooves us to recognize with a view to possible operative treatment. In four cases he slit the sternum slanting from the right lower side to the upper left side in the second or third interspace. The pericardium was then slit to correspond, and in three of the cases he was able by this means to break up the adhesions between the sheets of the pericardium, but in the fourth case this was not possible. Then a large portion of the anterior wall of the pericardium was resected, and the gap was covered with a fat-fascia flap. The operation was borne well by the four children, and those who saw them before and after the intervention were impressed with its actually magic action. One boy of 14 was almost at death's door, but recuperated remarkably and attended school until his death eighteen months later from intercurrent influenza. A girl of 13 also recuperated remarkably, could walk for hours without fatigue or shortness of breath, and looked in perfect health but succumbed a year later to recurrence of acute rheumatism. The two other

patients soon died from the progress of tuberculous lesions elsewhere. In all the cases the ascites, and the congestion of the liver subsided as circulation through the heart more nearly approximated normal. The disappearance of the ascites testified that it had been the result of the obstacle to the heart functioning represented by the unyielding pericardium, rather than by the liver. With adherent pericardium, if the heart is taxed, edema develops which subsides under repose. The inflammatory process sometimes spread to the surface of the liver when iodin had been injected into the pericardium of dogs to induce adhesions. This explains some of the features of adhesive pericarditis. The symptoms are more sharply defined and the course shorter in children than in adults. With the signs of stasis in the superior and inferior vena cava, the swelling of the veins in the neck, the puffiness of the face and the slight cyanosis, the large size of the congested liver may be regarded as an early symptom. Anything impeding the passage of the blood from the vena cava into the heart must entail stasis in the liver. He has witnessed extreme congestion in the liver developing in a few hours after a hemorrhage or a rapidly developing effusion in the pericardium.

Centrifuged Human Milk for Sick Infants.—Friedberg and Noeggerath describe the remarkable improvement of certain very sick infants when fed with breast milk from which the fat had been removed by centrifuging. It may prove a life saving measure in severe cases of "decomposition" as well as ordinary toxicosis. It averts the necessity for a starvation diet for more than one day at most. One 6 months' infant was given the second day 180 c.c. of the separator breast milk, increasing to 240 c.c. and by the fourth day all the symptoms of the toxicosis had subsided. The next day full breast milk was allowed in the same amount and the sixth day the whole picture of the toxicosis returned with cerebral symptoms and fever and persisted for five days, the child only gradually recuperating thereafter under whole breast milk. One infant of 2½ months with severe "decomposition" which had persisted for four days was restricted to tea for six hours, with six enemas of Ringer's solution, each 50 c.c., and analeptics, and then was given the centrifuged breast milk in small amounts, slowly increasing. The weight began to rise by the next day. By the fourth day small amounts of whole breast milk were allowed in addition. By the eighth day this was given exclusively, and the child continued to thrive. Infants thrive on this centrifuged breast milk when their condition seems to prevent their being nourished in any way. The nutritional properties of breast milk are paralyzed by the fat in it in these extremely toxic cases.

Epinephrin in Treatment of Pneumonia in Infants.—Vogl injected subcutaneously 0.2 c.c. of a 1:1,000 solution of epinephrin in sixty infants with pneumonia or capillary bronchitis in the Prague foundlings' asylum and in thirty brought to the dispensary. From one to four to eight injections were made daily, seeking to utilize the vasoconstricting and inflammation checking action of the epinephrin. The death rate was 6 per cent. in the institution and 13.5 per cent. in those brought from outside for the injections. The mortality in the outside cases not treated with the epinephrin was 45 per cent. He emphasizes that bringing the pneumonia infants to the dispensary was a kind of fresh-air treatment which had a salutary effect. Eight days was the longest epinephrin course in any instance. He regards it as an actual causal treatment, combating the process of exudation in the finer air passages and infiltration of the lung tissue.

Galactose Metabolism in Infants.—Meyer and Stern report from sixty-three tests that the limit of tolerance for galactose after ingestion of from 10 to 60 gm. seems to be 20 and 40 gm. in infants of 1 and 2 years. Elimination of larger proportions than 0.5 and 3 gm. with these amounts is a sign of insufficiency in some part of the digestive apparatus. After subsidence of the acute phenomena, the liver will generally be found below par.

The Sugar Content of the Blood in Infants.—Mertz concludes from his long analysis of what has been published on this subject that the carbohydrate metabolism of infants and young children obeys the same laws as in adults. It has no special features.

Beiträge zur klinischen Chirurgie, Tübingen

1920, **120**, No. 2

*Resection for Hard Gastric Ulcer. H. Kloiber.—p. 247.
*Gastric and Duodenal Ulcer. F. Zacherl and Emma Landes.—p. 302.
Spurious Appendicitis in Influenza. H. Brütt.—p. 313.
Appendix Peritonitis. O. M. Chiari.—p. 326.
*Rubber Prosthesis for Bile Ducts. L. Simon.—p. 344.
*Hydronephrosis from Abnormal Blood Vessel. F. C. Hilgenberg.—p. 357.
Anesthesia for Excision of Rectum. H. Schmerz.—p. 368.
Subcutaneous Injury of Wrist Bones. W. Peters.—p. 373.
*Schlatter's Disease. W. Müller.—p. 389.
*Pneumatocele of the Skull. W. Müller.—p. 399.
The Purpura Problem. F. Kleeblatt.—p. 412.
*Multiple Cancers. M. Silberberg.—p. 427.
*Freshened Surfaces in Joining Bones. K. Scheele.—p. 442.
Intratracheal Tumors. O. Maier.—p. 450.
*Retropharyngeal Goiters. H. Schmerz.—p. 483.

Transverse Resection of Stomach for Hard Ulcer.—Kloiber devotes over fifty pages to the ultimate outcome in eighteen cases reexamined from two to four years after transverse resection of the stomach on account of a callous boring ulcer. In one of the cases the course and operative and histologic findings indicated simple ulcer but two years later the patient succumbed to carcinosis originating in a cancer in the resection cicatrix. Serial sections of the whole resected portion might have disclosed the malignant disease. One other patient succumbed to intercurrent disease, and 5.6 per cent. have been merely improved, but in 72.2 per cent. the cure has been complete and permanent. The experiences described teach the advantages of making the resection extensive, as this reduces the secreting surface and also the surface in which cancer is liable to develop. The details of the cases are given, with roentgenographs of the present condition.

Gastro-Enterostomy for Gastric and Duodenal Ulcer.—Zacherl and Landes review their experiences with 39 cases of gastric or duodenal ulcer in which the operation revealed cicatricial tissue. During the last five years they have had no instance of cancer developing after gastro-enterostomy in previous years, and hence are inclined to pay little heed to the danger of malignant degeneration. If the subjective and objective symptoms of gastric or duodenal ulcer persist after two courses of medical treatment, they advise operative measures. After posterior gastro-enterostomy, they shut off the pylorus by Merten's method of drawing it up with two threads above and below and turning in the pylorus. This does not insure anatomic closure, but sufficient functional closure for the purpose. In 26 recently reexamined, the pylorus was not permeable in 14; it was slightly permeable in 9, and quite permeable in 3 although most of the food passed through the anastomosis. In 24 cases 79.2 per cent. may be regarded as a complete cure; 8.3 per cent. were improved but not cured.

Rubber Prosthesis to Connect Bile Duct with Duodenum.—Simon was obliged to bridge the gap with a rubber tube in five cases in which it was impossible to join the hepatic or common bile duct directly to the intestine. In two of the cases he removed the tube later, and in three he left it to its fate. In this latter group the functional results were perfect from the very first day. He regards it as extremely important to make a cover of peritoneum tissue to encase the rubber tube. In two of the cases he took the flap for the purpose from the serosa of the duodenum itself. It is important further to do the operation with the patient reclining with the organs in their natural position, not thrown forward by a bolster. The tube was held in the bile duct with a single catgut suture but no suture was applied to the lower end, as the slanting passage, 2 or 3 cm. long, into the duodenal wall seemed to guarantee a firm enough hold. This end of the tube projected about 1 cm. into the lumen of the duodenum. The result was so good in his cases that he thinks this technic might be advisable even when direct anastomosis is possible. The rubber tube was never found in the stools except in one case in which the common bile duct was double, and two tubes had to be used; one of them passed off later through the anus.

Hydronephrosis Caused by Abnormal Blood Vessel.—Hilgenberg compares with a case described the few cases on record of intermittent hydronephrosis from this cause, and urges the necessity for an early diagnosis. This alone permits effectual operative treatment before the parenchyma has suffered irreparable injury.

Spontaneous Separation of Epiphyses.—Müller describes a case of Schlatter's disease in a boy of 13 who presented, besides the typical splitting off of the tuberosity of the tibia on both sides, separation of the epiphyses of the trochanter minor, and partial splitting off of the tip of one patella. There was no history of trauma of any kind. Schlatter's disease thus seems to be a symptom of a systemic pathologic condition which manifests itself in a tendency to spontaneous separation of epiphyses and infractions, most evident in the tuberosity of the tibia. It seems to be connected with late rachitis.

Pneumatocele of the Skull.—Müller knows of only twenty-one cases in the literature of the peculiar tumor which results from accumulation of air between the bone and the periosteum of the skull. He adds another case to the list, with an illustration of the woman of 50. The entire side of the head was taken up by the tumor, all the hair having dropped out over it. It measured 8 by 11 cm. and she could press the air out of it into the outer ear but the tumor soon filled with air again. It had developed about eighteen months before, but she had had otitis at 15 and 21, which had subsided under local treatment. He cured the pneumatocele by closing with a flap of fat the opening for the air, and removing the periosteum over the area involved.

Multiple Cancers.—Silberberg reports six cases of multiple cancers and compares them with others on record, saying that possibly many cases of supposed recurrence of cancer may have been multiple primary malignant growths. In two of his cases cancer developed simultaneously in both breasts but they were of the same type. In two other cases they were of different types. In another case the cancer in one breast was evidently a metastasis from a gastric cancer while the cancer in the other breast was an independent growth of another type. In the sixth case the cancer in the second breast followed over two years after the excision of the other breast for cancer.

To Join Bones by Raw Surfaces Cut in Steps.—Scheele's illustrations show how the area of the freshened surfaces can be enlarged by cutting them in steps.

Retropharyngeal Goiter.—Schmerz analyzes the experiences in von Hacker's service at Graz with 2,000 goiter operations in sixteen years. Among all these and an additional group of 130 operative cases of strumitis, there were only 0.02 per cent. cases of retropharyngeal goiter. These retropharyngeal tumors were all successfully removed by the usual thyroidectomy technic. They had interfered with swallowing, and in one case the tumor, as large as an apple, could be seen at the root of the tongue.

Deutsche medizinische Wochenschrift, Berlin

Sept. 2, 1920, **46**, No. 36

Adaptation in Relation to Constitution. F. Kraus.—p. 989.
*The Constitution of Illegitimate Children. H. Reiter.—p. 991.
The Combination Treatment of Syphilis with Silver Arsphenamin Sodium and Colloidal Silver. Lenzmann.—p. 992.
*Diuretics in Kidney Disease. F. Hirschfeld.—p. 995.
*The Mid-Brain. E. Leschke.—p. 996. Begun in No. 35, p. 959.
Superinfection with Chicken Cholera Bacilli. M. Berliner and S. Citron.—p. 997.
Dietrich Complement Fixation Test in Fevers. A. Mayer.—p. 998.
Case of Traumatic Tuberculosis. H. Lau.—p. 999.
Test for Purity of Neo-Arsphenamin. A. Rödel.—p. 999.
"Care of War Cripples" (Schlossmann). Weinberg.—p. 1000.
Otologic Hints for the General Practitioner. Partial Deafness of Nervous Origin. G. Brühl.—p. 1000.

Constitution of Illegitimate Children.—In an examination of 1,962 legitimate and 1,000 illegitimate children in Rostock, Reiter found no characteristic difference in the length, but the weight of the illegitimate infants was 200 gm. less, on the average, than that of the legitimate children. This indicates that, as a whole, the constitution of illegitimate children is inferior to that of the legitimate. He points to Norway as a country in which the authorities consider it their duty to see to it that, as far as possible, illegitimate children are surrounded by all the conditions necessary to insure to them good prenatal development. He thinks that it is the duty of every country to do all it can to place safeguards about the lives of illegitimate children yet unborn.

Diuretics in Kidney Diseases.—Hirschfeld discusses the rôle of diet as affecting the action of diuretics in kidney disease. Certain diuretics may, with a diet poor in proteins, produce diuresis in kidney patients, whereas, with a diet rich in proteins, they will check diuresis. It is impossible to give definite limits, since in one case diuresis was checked with 130 gm. of protein and stimulated with 70 gm., whereas in another, a severer case, diuresis was checked with 70 gm. and stimulated with approximately 40 gm. It would appear, therefore, that, as the functional activity of the kidney is lessened, less protein is required in the food for the favorable action of diuretics.

The Clinical Pathology of the Midbrain.—Leschke refers to Fröhlich's having associated dystrophia adiposogenitalis with a decrease in the functioning of the pituitary body, and brings forward his reasons against accepting Fröhlich's theory. Among the thirty-five cases of this disease that have come to necropsy there were no less than twelve in which the hypophysis was not affected. In the remaining twenty-three cases many different forms of tumors had led to dystrophia adiposogenitalis, in some cases with an increase and in other cases with a decrease of hypophysial tissue. He states also his reasons for incriminating disturbances in the functioning of the midbrain in the pathogenesis of dystrophia adiposogenitalis. In all cases of such dystrophia the base of the midbrain was pathologic, even when the hypophysis was intact. Following an isolated injury of the midbrain, genital atrophy has been observed in animal experiments. Furthermore, it is known that exclusion of the midbrain causes a marked increase of protein metabolism (Grafe), whereas stimulation of the base of the midbrain brings about a decrease (Leschke and Schneider). It is in agreement with this fact that polyphagia plays a great part in all affections of the midbrain.

Jahrbuch für Kinderheilkunde, Berlin

1920, **93**, No. 3

*The "Butter-Flour" Mixture. A. Niemann and K. Foth.—p. 137.
Determination of Lipoids in Blood. J. C. Schippers.—p. 151.
*Calcium Metabolism in Infants. E. Schiff and A. Peiper.—p. 160.
Influence of Ultraviolet Light on Latent Tetany in Infants. F. Sachs. —p. 167.
*Infant Feeding During Second Year. C. Vahlensieck.—p. 177.

For and Against "Butter-Flour Mixture."—Niemann and Foth comment on the success of different pediatrists with special methods of infant feeding, but in the hands of others the outcome is disappointing. The "trade secret" which is not imparted, and cannot be imparted, is the skill in detecting the proper indications for the method. The butter-flour mixture seems to be adapted for artificial feeding of infants without severe nutritional disturbance, but for whom the ordinary milk mixtures are not suitable. It is contraindicated with acute diarrhea, or sudden great loss in weight, or acute rise in temperature from digestive disturbance. [The technic for making the mixture was described in these columns recently, p. 1101.]

Influence of Epinephrin and Pilocarpin on Calcium Metabolism in Infants.—Injection of pilocarpin in four infants from 2 to 4½ months old induced profuse sweating and retention of a larger proportion of calcium (with one exception). Epinephrin reduced retention of calcium (with one exception). The research demonstrates anew the close connection between the metabolism and the nervous system. The increasing irritability of the nervous system by loss of calcium and the increasing losses of calcium under the influence of epinephrin are closely linked processes. The tabulated details confirm that suprarenal treatment offers no chance of success in rachitis.

Feeding During the Second Year.—Vahlensieck reviews the experiences at the Barmen infants' clinic with 629 children during a period of eleven years. Of this number, 129 were studied with special care to estimate the effect of various diets. The children are weaned at 8 or 10 months; no benefit from nursing longer than this could be detected. Meat and eggs were entirely excluded but in addition to the gruels, zwieback, etc., nearly all the market vegetables were used, with the exception of the cabbage family. The four grades of the diet, with a total bulk of from 1,050 to 1,260 gm., represent from 960 to 1,242 calories, with from 34.66 to 44.16

protein; from 27.44 to 40.20 fat; and from 135.81 to 172.27 carbohydrates. The milk is diluted only in the first diet (1:3). The child passes through the four grades of the diet during the second year.

Mittheil. a. d. Grenzgebieten d. Med. und Chir., Jena

1920, **32**, No. 2

*Pseudo-Appendicitis. E. Liek.—p. 153.
*Localization of Abdominal Tumors. K. Heinrich Bauer.—p. 217.
*Surgical Complications of Typhoid. H. Weinen.—p. 260.
*Exudative Pleurisy. Max Rosenberg.—p. 267.
*Basedow's Disease and Myxedema. R. Cordua.—p. 283.
Prophylactic Use of Radium Treatment. F. Dauwitz.—p. 287.
*Sensibility of Internal Organs. V. Hoffmann.—p. 317.

Pseudo-Appendicitis.—The material covers 1,400 cases, including 300 designated as pseudo-appendicitis. The faulty differential diagnosis very often is due to perimetritis, also pyelitis or pyelonephritis, renal colic, enterocolitis, and acute inflammations of the cecum. Correctives for the diagnosis are afforded by the consideration that it is not sufficient to determine pain at McBurney's point, spastic contractions of isolated portions of the intestine, etc. Observations should be made of the history of each case, the possible connection with mental and nervous, perhaps local disturbances. In many cases, spastic contractions will disappear during narcosis and before the beginning of the operation. Nervous intestinal spasms are very frequent, and very often mistaken for what is designated as chronic appendicitis. For the relief of reflex neuroses no operation is proven definitely useful. Instead, atropin treatment of three weeks' duration is recommended: 0.001 to 0.0015 gm. of atrophin sulphate in pills each day. In severe cases, a 1:1,000 solution of atropin sulphate (for five days 3 times 4 drops; next five days, 3 times 8 drops; then 12 drops 3 times daily, and back to 4 drops). Liek warns against a one-sided, mechanical principle in surgical diagnosis. The function of the organs, especially within the digestive tract, and their dependence on nervous reflexes as induced by mentality, surroundings and habits, deserve full recognition, and this may prevent at least some unnecessary operations. An excellent bibliography is appended.

Localization of Abdominal Tumors.—Abdominal tumors are local affections. The development follows the length of the lesser curvature where the muscular apparatus forms a fissure (*sulcus gastricus* or *salivalis* of Retzius), where nearly all round ulcers are seated, and is localized laterally from this course, preferably at the posterior wall. Within this region the preferred locality again seems to be the close proximity to the physiological narrows, pylorus and isthmus. At these localities initial defects are prevented from healing by anatomic and functional conditions. An initial ulcer becomes chronic if located where constantly exposed to the influence of the gastric juice at every phase of digestion. Local anemia induced by stasis, spastic conditions, originate usually in neurogenous disturbances and will be recognizable by radiography, in which case a regulation of the natural functions will be more readily indicated than when several symptoms have set in. A list of 148 publications on the subject is appended.

Surgical Complications of Typhoid.—Weinen analyzes typhoid statistics 1873-1910 and compares with army data of recent times. He calls attention to the complications of splenic abscess indirectly caused by typhoid bacilli, also to the relatively rarer abscesses of the liver. A table covering 1874-1913 shows the status of typhoid, with complications, giving comparative data of mortality, for example, 7.23 in 1874-1875 against 0.004 in 1912-1913.

Exudative Pleurisy.—Rosenberg recommends the open pleura puncture according to Schmidt's method (*München. med. Wchnschr.*, 1915), in cases where the exudate extends beyond the upper third of the scapula, or when no resorption takes place after two or three weeks. The method consists mainly in replacing the exudate with air; this prevents the redevelopment of exudate and also the formation of broad adhesions between the costal and pulmonal pleura. The only contraindication is dyspnea.

Exophthalmic Goiter Developing Into Myxedema Under the Influence of Roentgen-Ray Treatment.—Cordua analyzes cases where such an influence undoubtedly was proved. He warns against pursuing radiologic treatment until complete disappearance of struma, and recommends two to four energetic treatments with a subsequent rest period for five or six weeks before resumption.

Sensibility of Internal Organs.—Pain irritation in the internal organs is conducted along the course of the vegetative system, especially cerebrospinal nerves. One and the same process in an organ may or may not be attended by pain, according to the manner in which the process begins, or in which it reaches the course of the pain-nerves. "The intestines are to be credited with conscious sensibility." The pain-nerves are but scantily developed, and in some localities even entirely absent.

Monatsschrift für Kinderheilkunde, Berlin

September, 1920, **18**, No. 6

*Significance of Thirst in Toxicosis. F. Göppert.—p. 481.
*Starvation Diet in Alimentary Toxicosis. F. Göppert.—p. 483.
Carbohydrate Fermentation. K. Blühdorn.—p. 488.
Mortality of Children to End of Second Year. Blühdorn and Ohlemann.—p. 501.
Nitrogen and Fat Metabolism in a Case of Congenital Occlusion of Bile Ducts. E. Freise.—p. 515.
Practical Results of Moll's Phosphate Test. O. Weidmann.—p. 520.

Thirst as a Manifestation of Toxicosis.—Göppert recalls the familiar experience that when, as was usually the case, toxicosis patients were given a thorough lavage of the stomach and intestine, a number, either during the procedure or within thirty or forty minutes, began to take on a fresh and natural appearance, whereas others were only slightly affected thereby, and many not at all. The favorable effect was usually explained as due to the removal of some offending substance from the stomach or intestine, but the fact is there was often little to be removed, and yet the effect secured was often striking. It has developed in recent years that the removal from the gastro-intestinal canal of food remnants was important and useful, in many such cases, but even more important was the subsequent filling of the stomach or intestine with large quantities of a warm fluid. We now distinguish therefore, clinically, those mild cases of toxicosis in which, following ingestion of water, the cerebral symptoms disappear, and the serious cases that are not influenced thereby. Göppert finds that in most of his cases the signs of toxicosis have developed fully only because of the presence of marked thirst. If the thirst is quenched the threatening aspects disappear to such an extent that it requires a careful examination to detect the danger that threatens the child. In fact, it is often quite impossible to discover the toxicosis without a knowledge of the previous history. In certain cases of this kind, the subsequent treatment departing from that indicated in toxicosis in infants, the children either died or their lives were endangered. The conclusion, therefore, is that if a child is threatened with toxicosis, the symptoms of such toxicosis will appear earlier under the influence of thirst, and may disappear when the thirst has been quenched.

The Dangers of Starvation Diet in Toxicosis.—Göppert recalls that our two main weapons in combating toxicosis in infants are withholding of food and the ingestion of large quantities of water or other liquid. He admits that, as a general rule, this method is satisfactory and that there is no great danger of overdoing the hunger cure, but he points out that for certain weak children the sudden and complete institution of the starvation diet is a very serious matter. To extend the diet of highly diluted milk for a period of more than twelve or even eight hours is fraught with danger in the case of children who are cachectic from prolonged diarrhea, who have become emaciated by a milkless gruel diet, or who, although now in fair condition, have recently passed through a time of reduced diet and are now suffering from a relapse of the toxicosis. Göppert has found in such cases that the disturbance of function of the lower portion of the intestine, as compared with the small intestine, was very slight and that rectal injections of maltose preparations are well borne and are helpful. They gave the system the additional nourishment required to tide the patient over the crisis, thus facilitating recovery; in fact, in some cases recovery might not have been possible without them.

Münchener medizinische Wochenschrift, Munich

Aug. 13, 1920, **67**, No. 33

*Sedimentation Time of Red Corpuscles. W. Runge.—p. 953.
Serologic Studies on General Paresis. V. Kafka.—p. 955.
War and Tuberculosis in Munich. J. Bartschmid.—p. 957.
Trauma of Nervous System and Pernicious Anemia. J. Zadek.—p. 960.
Progressive Bulbar Paralysis and War Service. H. Baumm.—p. 961.
Nature of Sachs-Georgi Reaction. M. Mandelbaum.—p. 962.
*Erythema Venosum. Lengfellner.—p. 962.
Massage of Abdomen in the Erect Posture. W. Smitt.—p. 963.
Retention of Murphy Button in Gastro-Enterostomy. W. Bürmann.—p. 963.
"Open" Pulmonary Tuberculosis in Infants. Klotz.—p. 964.
Use of Etiologic Conceptions in Medicine. H. E. Hering.—p. 964.
Remedies and Poisons Found in Homer. L. Lewin.—p. 966.

Sedimentation Time of Red Corpuscles in the Healthy and Mentally Diseased.—Runge reports, as the results of his investigations, that not only in paralysis, tabes, and syphilis of the brain; in arteriosclerosis and inflammatory cerebral processes, as well as in inflammatory processes in other parts of the body, but also in a considerable proportion of dementia praecox cases, the sedimentation of red corpuscles is accelerated. In a few rare cases remarkably slow sedimentation was observed, for which no explanation could be found. Runge is not prepared to say whether there is any direct connection between accelerated sedimentation and the disease process or whether it is the result of secondary disturbances (disturbances of nutrition, motor disturbances, etc.), but his findings encourage further research in this line for diagnostic purposes.

Atypical Erythema Nodosum.—Under the term "erythema venosum" Lengfellner considers his 84 cases of atypical erythema nodosum, 36 being observed for many years. All the cases presented in the region of the lower third of the leg, between the shoe tops and the bottom of the skirt, a cufflike reddening of the skin, together with swellings, not usually sharply defined. The skin over the crest of the tibia and the outside of the leg were always most affected. The patients were all women and girls, and 60 per cent. looked healthy, but a large percentage of them presented an excessive panniculus adiposus. The swellings often persist for years without the patient complaining particularly, until finally a bluish red discoloration appears. They seldom pit on pressure except in the secondary stages. There were often accompanying pains in the feet, in the ankle and throughout the leg. Only continued massage, preferably of the whole body, could bring enduring relief. Of the 84 patients 21 developed ulcers of varying size; 3 were syphilitic; 3 were tuberculous, and the rest were typical (mostly small) ulcera cruris. Lengfellner regards the ulcers as the natural end-product of the whole process, and thinks that ulcers would have appeared in every case if proper treatment for improving the circulation had not been given. Besides massage, local treatment consisted of quartz lamp radiation, hot air jets, resinous dressings and local protection against cold and external injury. (A similar atypical erythema nodosum on girls' legs was mentioned in THE JOURNAL, Feb. 28, 1920, p. 638.)

Wiener klinische Wochenschrift, Vienna

Aug. 26, 1920, **39**, No. 35

Protein Therapy. H. Hayek.—p. 768. Conc'n in No. 36, p. 798.
Tuberculin Allergy and Local Reaction. P. Gerber.—p. 772.
Tuberculin Diagnosis in Pulmonary Tuberculosis. A. Kirch.—p. 774.
Enanthems and Exanthems in Influenza. A. Leimdörfer.—p. 776.

Zeitschrift für urologische Chirurgie, Berlin

July 30, 1920, **5**, No. 1-2

*Disease in Malformed Kidneys. T. Cohn.—p. 1.
*An Accessory Kidney. S. Gottfried.—p. 11.
*Spontaneous Cure of Hypernephroma. S. Kraft.—p. 16.
Operation for Congenital Diverticulum of the Bladder. E. Schönburg and E. Pfister.—p. 27. Idem. V. Blum.—p. 90.
*Prolapse of Urethra in Little Girls. W. Schmidt.—p. 31.
*Papillomas of Renal Pelvis. T. Hryntschak.—p. 46.
*Recurrences After Prostatectomy. V. Blum.—p. 77.
*Ischiorectal Versus Suprapubic Prostatectomy. O. Orth.—p. 101.

The Zeitschrift.—As the *Zeitschrift für urologische Chirurgie* enters on its fifth volume, it announces the merger with it of *Folia urologica*, now in its tenth volume.

Disease in Malformed Kidneys.—Cohn reports a case of hydronephrosis in a practically single kidney, and one of tuberculosis. The other kidney was rudimentary in each case. The large size of an overworked single kidney is liable to mislead to the assumption that this is the diseased organ, as occurred in his tuberculous case.

An Accessory Kidney.—Gottfried comments on the importance of recognizing an accessory kidney as this allows resection of the diseased portion without the necessity for nephrectomy. In a case described the apparently normal ureter led to the accessory kidney, while a small supernumerary ureter was the outlet for the normal kidney. Accessory and malformed kidneys seem to be especially predisposed to disease. Harbitz found congenital malformation in three of nine cases of tuberculosis of the kidney.

Spontaneous Cure of Hypernephroma.—Kraft's patient was a man of 46 who two years before had had part of the left kidney resected for cystic degeneration. Six months later pains compelled nephrectomy, and the kidney showed evidences of having been the seat of a hypernephroma which had become transformed into a multilocular cystic tumor. The hypernephroma in this case could be traced back to the age of 9, and Kraft urges the importance of suspecting hypernephroma in children when there is hematuria in the midst of apparent health. An exploratory incision may be advisable. Fabricius has reported a case of spontaneous subsidence of a hypernephroma in a man of 55. The tumor masses had become encapsulated and lost their vitality from pressure atrophy. The patient is still in good health, twelve years later.

Prolapse of Urethra in Little Girls.—Schmidt gives a colored plate of the first of his two cases of prolapse of the urethral mucosa in girls of about 6. In his second case the prolapse followed local treatment of the urethra during gonococcus vulvovaginitis. Two-thirds of the total seventy-nine cases compiled by Brüning were in girls between 8 and 11. In Schmidt's first case a catgut suture was run around through the mucosa at the base of the prolapse after a stout metal catheter had been introduced into the bladder and a silk thread in each half of the distal portion of the prolapse. The prolapsed mucosa was cut off above the run-around suture. There was very little bleeding and there has been no incontinence since. The cautery, bed rest and application of cold, with mechanical measures, may cure in moderate cases of prolapse. A cork disk on the retention catheter, pressed against the meatus, may aid in overcoming the tendency to prolapse. Ingerslev advocates a cotton tampon in the vagina. The cautery is liable to lead to stenosis later. In conclusion, Schmidt warns of the importance of the silk thread in the distal urethral mucosa on each side. Traction on them prevents the prolapsed mucosa from retracting, as occurred in Guersant's case. He describes further the Singer, Emmet and Kleinwächter technics.

Papillomas of Kidney Pelvis.—Hryntschak discusses the clinical picture and the pathologic anatomy of a case in a man of 39, with illustrations of the kidney; also in thirty-five cases of probably, and of six of certainly benign character, and of twenty-seven positively malignant cases of renal pelvis papillomas. Nephrectomy is the only treatment, and the patient should be supervised with the cystoscope for a full year afterward.

Recurrences After Prostatectomy.—Blum relates that after an interval of nine years free from symptoms following radical suprapubic prostatectomy, the man of 68 had to return to the systematic use of the catheter until a second suprapubic operation relieved him anew. Blum emphasizes that what we call the surgical capsule of the prostate is in reality the squeezed-flat, normal prostate, and that this may develop an adenoma again as well as at first. His case and about twenty similar cases he summarizes from the literature confirm the necessity for excising with the hypertrophied prostate the overhanging mucosa and every minutest scrap of adenoma tissue left after the enucleation. Supervision should be maintained for ten years.

Ischiorectal Prostatectomy.—Orth compares the mortality of from 10 to 22 per cent. with suprapubic prostatectomy and of 8 or 9 per cent. with the perineal, to the 3 or 4.7 per cent. of the ischiorectal method according to Voelcker, and expa-

tiates on the ample oversight afforded by the latter, with its other advantages, especially the free drainage at the lowest point. He reports from Voelcker's service its application in four cases of cancer in the prostate. In three there has been no sign of recurrence since the operation, the intervals up to one year. The shriveling with the atrophy of the prostate sometimes induces retention as with hypertrophy, and this ischiorectal operation in such cases usually showed that attempts at nonoperative stretching could not possibly have been successful. He refers to Voelcker's publications for the technic, saying it is the prostatectomy of the future. The rectum was injured only in one of the seventy-nine cases in which it has been applied in the service; this compelled completing the operation from the front.

Zentralblatt für Chirurgie, Leipzig

Aug. 21, 1920, **47**, No. 34

*Operations for Renal Calculus. G. Marwedel.—p. 1034.
Retroperitoneal Access to Deep Abscess. Pribram.—p. 1036.
Simple Method of Fastening a Catheter. J. Stickmann.—p. 1039.

Operations for Renal Calculus.—Marwedel states that in the case of large stones, to remove which the incision may have to be extended from the pelvis into the kidney proper, pyelotomy on the anterior side of the pelvis is to be preferred. After removal of the stone he introduces a small closed forceps into the pelvis and passes it through the parenchyma of the kidney until the tip appears on the convexity of the kidney, and with this he draws a fenestrated drainage tube down into the pelvis.

Zentralblatt für Gynäkologie, Leipzig

Aug. 14, 1920, **44**, No. 33

*Tuberculosis of the Female Genital Organs. Bauereisen.—p. 905.
*Endometritis Post Abortum and Uterine Hemorrhages. Lahm.—p. 914.
"Relation of the Corpus Luteum to Menstruation." Frantál.—p. 918.

Aug. 21, 1920, **44**, No. 34

Oxyurids in the Female Genital Organs. F. Klee.—p. 939.
Experiences with Twilight Sleep. W. Schmitt.—p. 941.
Adenomyoma of Posterior Wall of Vagina. Hinterstoisser.—p. 947.

Experimental Research on Primary Tuberculosis of the Female Genital Organs.—Bauereisen injected 0.2 gm. of a bovine tubercle bacillus emulsion through an abdominal incision into the seminal vesicles of four male guinea-pigs. A severe tuberculosis of the seminal vesicles, the prostate and the vas deferens developed, which extended into the epididymis, by way of the lymphatics. Tubercle bacilli were found in the bladder urine of four of the animals. There were tuberculous nodules in the peritoneum, liver, spleen and lungs. Of eleven healthy female guinea-pigs laparotomy was performed on four and the cornua uteri ligated and divided. The other seven were left intact. After the wounds of those operated on had healed, the males and females were put together. Five weeks later seven of the females were killed. In four instances a typical tuberculosis of the vaginal mucosa had developed; twice an extensive tuberculosis of the cornua uteri was noted. As to direct infection of the embryo, the results were negative. However, bacilli, together with infiltration, were found in the liver of one embryo; also primary tuberculosis of the vagina, but as acid-fast, that is, tubercle bacilli, could not be demonstrated, Bauereisen thinks the condition must be explained by hematogenic infection of the embryo by the mother.

Endometritis Post Abortum and Uterine Hemorrhage.—Lahm states that the investigations of recent years on uterine hemorrhages have sought to establish the causal connection between the ovaries and the uterine mucosa in both physiologic and pathologic conditions. Hemorrhages following abortion or incomplete expulsion of the placenta are the material that should be studied to reach definite conclusions as to causal relations. He has found not infrequently in cases of hyperplasia mucosae uteri in mature women inclusions in the uterine mucosa, which presented morphologically the appearance of remnants of gestation products, and he endeavors to show that endometritis post abortum is not only the cause of the well-known metrorrhagic hemorrhages but also for the frequent hyperplasia of the endometrium following interruption of a pregnancy. It may even exert an inhibiting influence on the ripening of the follicles in the ovaries. In the latter case the stimulus would pass, not from the ovary to the uterine mucosa, but exactly the reverse.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

June 19, 1920, **1**, No. 25

Changes in Energy During Movement. J. H. O. Reijs.—p. 2265.
*Melanosarcoma of Conjunctiva. L. K. Wolff and Deelman.—p. 2275.
New Terms in Medical Language. J. van der Hoeve.—p. 2282.
Goiter with Total Ophthalmoplegia. M. den Boer.—p. 2284.
Hyperesthesia in Lethargic Encephalitis. H. J. Kruisinga.—p. 2286.

Sarcoma of the Conjunctiva.—A woman in the thirties had had for ten years a pigmented patch on the temporal conjunctiva. Then it rapidly developed into a melanosarcoma. This was removed, and prophylactic roentgen-ray exposures were given to a total of 16 H units with 5 mm. aluminum filter. The functioning of the eye was not impaired and there were no disturbances of any kind for more than a year. Then pigment began to gather at the old site of the tumor. There was nothing to suggest a tumor, about this patch, but as its malignant nature could not be disproved, the eyeball was enucleated. The microscope showed a structure like the preceding sarcoma, as also in a nodule removed from the cheek, near the left eye, which developed a few months later. The important features of the case are (1) the failure of the roentgen-ray treatment to ward off recurrence, and (2) the fact that the roentgen exposures did not damage the eye in the least either in function or structure; nothing could be detected with the microscope to indicate the slightest harm from the course. In Axenfeld's glioma cases, given roentgen-ray treatment, cataract developed thereafter in the entire group, in some as early as in twelve or eighteen months. Conjunctival sarcomas generally grow outward and not into the depths, while they seem to be prone to late metastasis and the recurrence may not present any of the clinical characteristics of a tumor.

Norsk Magazin for Lægevidenskaben, Christiania

October, 1920, **81**, No. 10

*Diagnosis of Disease of Internal Ear. F. Leegaard.—p. 961.
Shoulder Disabled by Unsuspected Subdeltoid Calcified and Ossified Bursitis. O. Usland.—p. 980.
Dakin's Fluid with Wound Diphtheria. K. Haugseth.—p. 994.
*Hereditary Mental and Skin Anomalies. J. Henrichs.—p. 996.

Internal Ear Disease.—Leegaard says that circumscribed labyrinthitis requires only enough of an operation to insure free escape for the secretions, and diffuse labyrinthitis, only when it is suppurative. Serous diffuse otitis calls merely for rest in every respect. The signs of the suppurative diffuse form are a stormy beginning with vestibular symptoms, vomiting, nystagmus, subjective noises, rapid, complete deafness, loss of reacting power from the vestibular apparatus, sometimes fever, and the discovery of a fistula from which pus is oozing. The physician must be guided by individual conditions in steering between the Scylla and Charybdis of conservative and operative treatment.

Hereditary Mental Disease and Ichthyosis.—Henrichs gives the genealogic trees of seven families in which an inherited taint manifests itself in idiocy and ichthyosis in different members of each generation and sometimes both in one person. The records show from eight to sixteen members in each family thus affected in the course of four or five generations. He discusses the mechanism of this hereditary taint, being inclined to incriminate the endocrine system and the thyroid in particular.

Ugeskrift for Læger, Copenhagen

Sept. 16, 1920, **82**, No. 38

*Fat Infiltration of Liver. E. Begtrup.—p. 1199.
Recovery from Meningococcus Sepsis; Two Cases. S. Kiær.—p. 1204.

Fat Infiltration of the Liver.—Begtrup is prosector, and he has noted that persons do not die of fat infiltration of the liver. This seems to be capable of retrogression. In the five years before 1916, he found fat infiltration of the liver in from 18 to 23.5 per cent. of the cadavers, but since then only in 4.5 to 6.2 per cent. The proportion of cases of cirrhosis of the liver has shown no such decline, the range being only from 6 to 4.9 per cent.